

# Terrain: See It to Simulate It

Rob Rinne (8470) and Garry Brown (9011) recently spent four days touring the borders between West Germany and East Germany/Czechoslovakia by low-altitude helicopter. The tours, along with briefings by U.S. and German military commanders, resulted from the Sandians' role in the European Conflict Analysis Project (ECAP).

Specifically, the close-up views of German border terrain — primarily "front line" areas, those concerned with close-range conflicts involving infantry, artillery, and armored fighting vehicles — will aid in developing more realistic computer-based war games.

Rob heads the Model Development & Exchange Group within ECAP; he helped found the parent organization in 1983 after a Sandia-sponsored conference discussing European perspectives on defense was held at Livermore. The terrain analysis tour was "the most useful, informative, and impressive trip I have taken in my 20 years at Sandia," Rob reports.

Garry also serves on the Model Development & Exchange Group and the Studies & Analysis Group as well. In fact, he's the principal representative to



ROB RINNE (8470) looks over a principal waterway in the central region of West Germany.

ECAP from Sandia Albuquerque. He echoes Rob's comments about the value of the on-site inspections and adds, "It was a most comprehensive and valuable experience for me — we exchanged more information per hour over an extended period than on any other trip I've ever been on."

The overall purpose of the tours for Rob and Garry (and five other Americans and their German hosts; see box) was simple: to improve the quality of their computer-based war games, simulations, and systems studies. The means was equally simple: to observe first-hand the terrain that affects battlefield tactics and front-line defense planning.

"The terrain study helps us [U.S. and German systems analysts] place our technologies and capabilities in better perspective," Garry explains. "That is, we gain insights that help us understand the role of new technologies. For example, a new weapons system can make a contribution to European defense

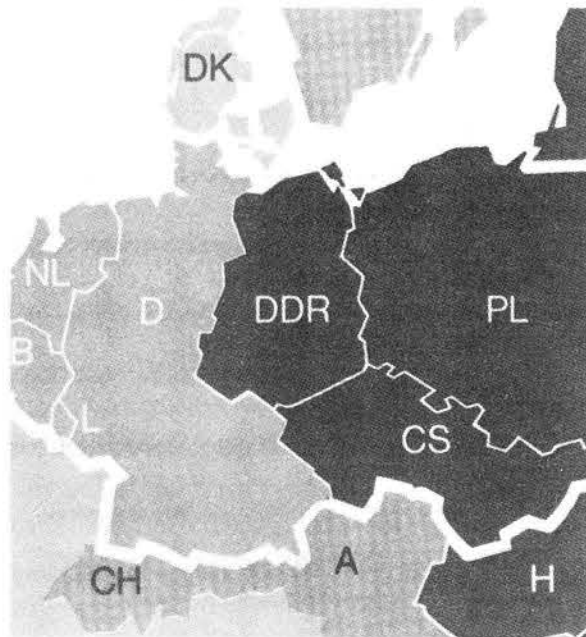
ranging from very good to zero, depending on how it's deployed. What we got on this tour was a continuous set of tutorials on the interplay among terrain, tactics, and equipment."

## Treetops at 120 Mph

The group's daily agenda included an early morning briefing, then helicopter flights near the East German or Czech borders. Flying at treetop level at speeds of more than 120 mph, they took hundreds of color photos. The photos will be used in computer modeling to assist NATO and German forces in their tactical planning.

The group landed at several observation points each day to talk with field commanders and examine local terrain maps depicting expected avenues of attack and corresponding defensive positions.

*(Continued on Page Three)*



ONE BORDER, often (for political reasons) called a boundary, that was photographed by Rob Rinne (8470) and Garry Brown (9011) is that of West Germany (D) and East Germany (DDR); the other is the border between West Germany and Czechoslovakia (CS). It was a high-speed, low-altitude helicopter tour — 120 mph at treetop level. Other countries, included for context, are (counterclockwise from bottom center) Austria (A), Hungary (H), Poland (PL), Denmark (DK), the Netherlands (NL), Belgium (B), Luxembourg (L), and Switzerland (CH) — this is a German map.



# LAB NEWS

VOL. 39, NO. 14    SANDIA NATIONAL LABORATORIES    JULY 17, 1987

## They Know the Territory

# Sector Chiefs Play Key Role in Emergency Operations Plan



WIDE OPEN SPACES are the responsibility of Sector Chief Dave Bickel (7535), whose Sector No. 51 covers all of Area III's environmental testing facilities (scattered over three square miles).

Chances are, if someone asked you the name of your Emergency Sector Chief, you'd shrug and say "No idea." You probably wouldn't be alone in that response. Turns out, though, that your Sector Chief's ID is a valuable bit of information to have on hand.

The Emergency Sector system is a key to Sandia's timely response to emergency incidents, according to Max Martinez, a member of Duane Hughes' new Emergency Preparedness, Security Operations Training Division 3438. SNLA land and facilities are divided into sectors, each with an emergency team headed by a Sector Chief.

"Any employee may initiate a call for assistance by contacting Security [on ext. 144] and the Sector Chief," says Max. "If the Sector Chief is available, he or she assumes command of the situation until relieved by the On-Scene Commander — usually someone from Security."

"The sector system establishes procedures that can be activated rapidly by a trained team of sector 'residents' who know what needs to be done in case of

*(Continued on Page Four)*

# Antojitos

A Tribute from Tom Tom Clark, departing manager of DOE's Nevada Operations Office (and former deputy manager at AL), said some nice words about Sandia at one of his retirement bashes. His speech may be paraphrased slightly (gotta get my spies to take shorthand), but it went something like this: "I've had a long association with Sandia, and -- though I probably shouldn't say this with Los Alamos folks in the room -- I've bragged to a lot of people in this country about how great Sandia is. I do get some funny looks from those in upper management at Sandia, some of whom came from AT&T and think that Bell Labs is the best engineering lab in the U.S. But when you look at the breadth of what Sandia does, you have to conclude that it's absolutely the best engineering lab in the country -- and it's the people who make it that way."

\* \* \*

How to Get Tom to Talk So Nice The occasion was an enchilada party, for which Sandia is notorious at Nevada Test Site. Although Adam Trujillo (7135) has called Las Vegas home and NTS work for 17 years, he picked up and polished his enchiladic skills in his 16 prior years at Sandia Albuquerque. Fellow Field Test conspirators help by smuggling red chile and tortillas through the Albuquerque and McCarran airports and out to the Site; they help with the cooking too -- on a couple of electric hot plates. For Tom's bash, Jerry Kennedy (7130) was the egg-frying flunkie for the 80 guests.

DOE Las Vegans and others manage to schedule business trips to the Site to coincide with such Sandia parties, Adam reports. "After all, what's 65 miles for New Mexico-style enchiladas?"

\* \* \*

Do a Good Deutsch-Deed Help out Dr.-Ing Hans Ruscheweyh of Aachen, West Germany. He's sent a letter, addressed simply to Sandia Labs, asking that his address be changed. He's not a LAB NEWS subscriber, and we don't know what Sandia mailing list he's on. If his name rings a Glocke, give me a call.

\* \* \*

More German In German, BH is slang for a "büstenhalter" (we'd call it a bra). ●BH

\* \* \*

And Still More Wenige wissen, wieviel man wissen muss, um zu wissen, wie wenig man weiss. (German: Few know how much a man must know in order to know how little he knows.)

## Spare Your Wastebasket

If you're about to retire or leave the Labs,  
don't toss your historically valuable records.

Corporate Historian Necah Furman (3151A) is looking for  
audiotapes, records, and photos.

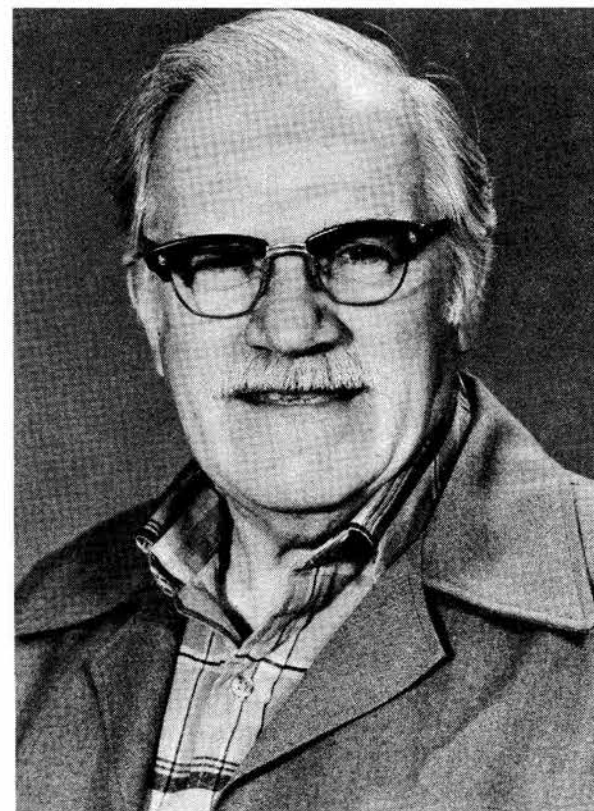
Call her on 6-9619.

## Retiring



Don Robie (2331)

31



Leo Reynolds (7212)

35

## LAB NEWS

Published Fortnightly on Fridays

SANDIA NATIONAL LABORATORIES

An Equal Opportunity Employer

ALBUQUERQUE, NEW MEXICO  
LIVERMORE, CALIFORNIA  
TONOPAH, NEVADA  
AMARILLO, TEXAS

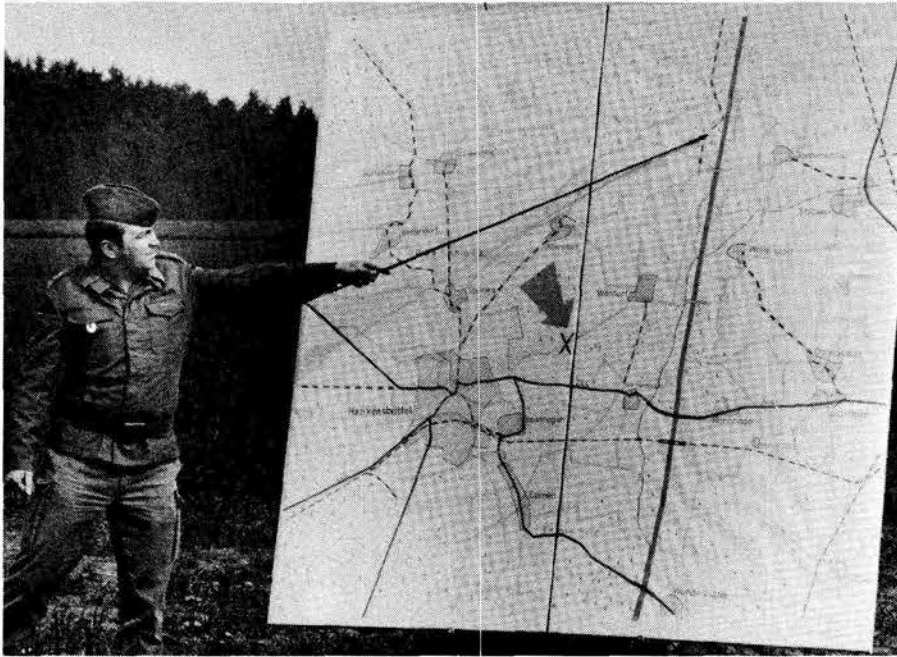
Sandia National Laboratories is operated by Sandia Corporation, a subsidiary of AT&T Technologies, Inc., and a prime contractor to the U. S. Department of Energy.

BRUCE HAWKINSON, Editor  
PHYLLIS WILSON, Writer  
IRENE DUBICKA, Writer  
RANDY MONTROYA, Photographer  
GERSE MARTINEZ, Asst. Photographer  
JANET WALEROW, Editorial Assistant  
SANDRA MORA, Assistant  
BARRY SCHRADER, Livermore Reporter

Member International  
Association of Business Communicators



MIRIAM LEON, a materials apprentice currently assigned to Glass Formulation and Fabrication Section 7471-1, shows a tour group of high school students from Acoma Pueblo how to use a mechanical press to form glass samples. Miriam is herself a resident of that pueblo. Behind Miriam is section supervisor Ron Snidow, and in the far right background is Bob Austin (3163), who arranges tours of Sandia throughout the year.



GERMAN ARMY OFFICER briefs the ECAP (European Conflict Analysis Project) visitors on the terrain in part of the north German plain.



'HALT HERE FOR THE BORDER' is a rough translation of the sign above (left) Frank Smith of LANL and Garry Brown (9011).

**(Continued from Page One)**

## Terrain

"Viewing a terrain in person really helps you understand its impact on operations," notes Rob. "With a flat map you don't get the feeling for the variations — the steepness of a river bank, the congestion created by villages, the density of the woods."

"We saw several areas where the weapon labs can help with our modeling efforts," Rob continues. "Given the many different strategies and threat variations possible, it's a lot of work for a local commander in a 20-mile-square region to figure each firing position for his units. A model such as LLNL's JANUS could be very useful to the commanders in preliminary planning, training, and demonstration." The U.S. team on the trip plans to form a steering committee to work on this application.

Rob and Garry also will organize a seminar on their findings, to be held at Sandia this fall. It's a logical site for such a seminar: Sandia's modeling efforts are effective, according to Rob, because of a unique combination of capabilities — the super-computer power of the Crays to do the big number-crunching that's necessary for simulation work; the commitment to stay with a problem over a number

## Take Note

Jack Pons (8184) took Best of Show in the Amateur Plant Division at the Alameda County Fair for his Rabbit Foot fern. He also received two third place awards for his Asparagus fern entries.

## Fun & Games

For the second time in three months, a Livermore Sandian has hit a hole-in-one while golfing.

Ollie Rohrback (8186) shot his while playing in the Sandia Twilight League July 1 at the Los Positas course's second hole. Back in April Rodger Page (8164), president of the League, did the same thing, only at a different course.

For his feat Ollie received a dozen golf balls from the League and a plaque from *Golf Digest*, but no big car or world cruise — he'd have to repeat his achievement during a sponsored tournament for that. With him at the time of his 155-yard perfect swing with an eight iron were Bob Arnott (8184), Bob St. Hilaire (retiree), and John Carson, spouse of Shirley Carson (8236).

## Congratulations

To Gracie (8261) and Angel Miranda, a daughter, Elisa, July 3.

of years; and, of course, staff members' expertise.

(That expertise did not just happen: Sandians, most of them in Livermore, have been simulating military combat on computers since the early 60s and have used computer-based war games to build battlefield scenarios since the early 70s. Sandia's best-known war game is SCABBARD.)

"In other words, we have quality people, the commitment, and the facilities to produce excellent results, results that make a difference," Rob explains.

## Photographers Photographed

Rob Rinne tells of landing at one reconnaissance point manned by a U.S. platoon near the East German border, then climbing an observation tower to photograph the countryside. Only 100 yards away, across stretched barbed wire, was an East German tower — where the guards were photographing Rob and the rest of the group.

In addition to Rob and Garry, the group included Frank Smith of LANL; Donald Blumenthal of LLNL; Captain Richard Tripp (USN) of the Defense Nuclear Agency; Lt. Col. William Caldwell of the U.S. Army European Command; Michael Ellis of the consulting firm of Braddock, Dunn & McDonald; and their German hosts — Uwe Nerlich, Director of Research at Stiftung Wissenschaft und Politik (SWP); and Gen. Franz-Joseph Schulze (ret.), former Commander-in-Chief of Allied Forces in Central Europe.

"Recognizing these capabilities, the Germans want to interact more with the U.S. weapon labs, which they consider a unique Western resource. We already have that same kind of working relationship with several organizations in our own military."

## Strong Defense Forces

"The morale in the units we visited was extremely high, and their confidence in their equipment and planning was also high," Rob continues. "Our [U.S. and German] troops are well prepared, they have carefully studied the ground they are defending, and they know how they would go about it. Even if they were taken by surprise, I would expect them to seriously damage a very much larger enemy force."

Garry agrees, adding "I was really impressed by their high state of readiness — modern equipment, training, morale — especially when I compare it to what I saw of the U.S. Army in Europe right after Vietnam."

"And General Schulze, the ranking member of the group, was particularly gratified at seeing how well acquainted the high-level commanders were with details of terrain and defense plans."

In conjunction with a future ECAP meeting in Europe, Rob and Garry hope to spend two or three days at a Corps headquarters in Germany. This particular headquarters is responsible for sectors extending back more than a hundred miles from the inter-German border. A tour of the sectors, in contrast to the front-line tour, would give them an expanded view of how aircraft and other long-range systems would be deployed.



## SANDIA LIVERMORE NEWS

VOL. 39, NO. 14

SANDIA NATIONAL LABORATORIES

JULY 17, 1987



THREE WINNING DESIGNS from the Sandia Livermore Recreation Committee's T-shirt competition have been chosen and printed on shirts now on display in the lobby of Bldg. 911. Displaying the three choices are (from left) Jack Bishop (8265) who entered two of the winners, including the one held by co-worker Carol Flores (also 8265); the other winner is Sam Johnson's (8184). The shirts, in a variety of colors and sizes, are available in Bldg. 911; pay for them first (\$6) at the teller's office in Bldg. 912.

# Who's Your Sector Chief? Here's a Rundown

Emergency Sector Chiefs, if available, have responsibility for initial response to and assessment of an emergency that arises in their areas. Since emergencies are time-critical, it's important that employees know who's in charge. Take a minute to check out your sector number and Sector Chief on the following list:

Sector	Buildings	Sector Chief, Phone No.			
1	T53-56, 852, 873 thru 876	Robert Barton (3423), 4-3086	37	860	Olden Burchett (7551), 4-2370
2	887, 866, 953, 886, MO112, MO117	Elwin Schaefer (7831), 4-8405	38	862	Charles Britt (7811), 4-3477
3	898, 899, 950-952	Donald Kuehl (9222), 4-8805	39	863, MO126	Bill Geck (3153), 4-7167
4	889, 897, 957	Dominic Russell (3414), 4-7785	40	864	Ron Snidow (7471), 4-1031
5	605/Oil Storage Facility	Neal Rozell (7811), 4-3842	41/42	868	Thelma Harrell (9110), 6-1700
6	832, MO151-153, 833, 833A, MO141, 849, 851, T34-36, T33, 853, 853A-D, MO93, MO140	Jay Sanchez (3533), 4-3650	43	65	John Lewin (1512, alt.), 4-1456
6a	831 and Medical Facilities	Fred Johnson (3321), 4-2846	44	MO18-26, MO39-41, MO42-55	Bob Pace (9234), 4-2285
7	803	Barney Doyle (1111), 4-2609	45	870, MO207-210, MO90-91, T19, T22	Earl Conway (BAO), 6-7523
8	805, 806, 807	Jim Borders (1823), 4-8855	46	871, 872, 888, T8-10, T27-32, T44-46, MO81-82, MO124	Marvin Morris (7553), 4-7461
9	800	Jon Bedingfield (3731), 4-2381	48	3210, 3214 (Coronado Club)	Sal Salas (C-Club), 265-6791
10	801 North	Felipe Rivera (3462), 4-3668	49	Area II	Douglas Dugan (2514), 6-0433
11	802	Nita Wilson (132), 6-1946	50	Area IV	Steve Goldstein (1266), 4-3976
12	804	Cathy Pasterczyk (3144), 4-1080	51	Area III	Dave Bickel (7535), 4-1972
13	814	Bruce Hawkinson (3162), 4-1053	52	Area V	Ted Luera (6451), 4-0049
14/15	824, T14-16, T18-19	Joe Hernandez (3154), 6-0637	53	9925	Floyd Mathews (7533), 4-6129
16	828	Paul Hatch (1832), 4-2646	54	9820, 9825, 9831, 9832	Connie Coalson (7535), 6-0121
17	829, 830	Ted Baggett (3155), 4-6941	55	9970-9972	Robert Freeman (2343), 4-8890
18	808 (NE and SE quadrant)	Josephine Torres (9144), 4-7278	56	9990, 9991-9994	Gene Cnare (1221), 4-4860
19	809	Bernie Vallejos (5122), 4-6237	57	9800, 9801	Alfred Foster (9122), 4-6839
20	838, 839	Patte MacPherson (3413), 4-3608	58	9936-9939	John Bentz (7537), 4-4329
21	630, 632, 634, T1-6, MO79-80, MO216-218	John Cummings (1512), 4-6202	59	9960-9962	John Garcia (7482), 4-7642
22	639, 640, 641, 643	Howard Austin (7126), 4-7546	60	9930-9934	Rod Owenby (7132), 4-8131
23	893, MO71	Paul Brannon (1124), 4-2114	61	9940-9944	Bill Marshall Jr. (6427), 4-6191
24	894	Gilbert Lovato (7474), 4-7384	62	9940-9954, 9956-9957, 9950, 9950A	James Asay (1534), 4-1506
25	820, 821, 822, 823	John Risse (5213), 4-3841	63	9920-9924, 9926, 9916, 9917	Bill Benedick (1131), 4-1097
26	891	Charlie Jenkins (2312), 4-2477	64	9927, 9929, 9964, 9967	Duane Smith (7533), 4-7168
27	892	William Thomas (7251), 4-3201	65	6020, 6028, all igloos	William Rader (3423), 4-3536
28	818, 819, 869, 856	Al Stanley (3313), 4-5405	66	9980, 9981, 9982	Ken Boldt (6222), 6-8109
29	20402 (KAFB)	William Hoffman (7137), 4-2879	67	884	Sam Myers (1112), 4-6076
30	880 (Phase I), trailers west of 880	Gene Harling (7000A), 4-8844	68	857	Bob Blewer (2147), 4-6125
31	880 (Phase II computer annex)	Roger Campbell (2601), 4-2119	69	825	Dick Sanderville (3153), 6-9617
32	867, 881, 882, 883	Ken Campbell (7541), 4-6195	71	MO184-187	William Mertens (2626), 4-7813
33	836	Ed Barkocy (5153, alt.), 4-4840	72	MO188-191	William Foy (7556), 4-6737
34	835	Leonard Hitchcock (5152), 4-5267	73	MO192-195	Anthony Roybal (5245), 4-4250
35	834	Michael Lucas (7472), 4-1055	74	MO196-199	Michael Shipley (2115), 4-2369
36	840, 841, 844, 845, 846, 847	Paul Plomp (7483), 4-4307	75	MO200-203	John Herzer (2625), 4-6165
			76	MO160-163	Richard Jorgensen (5113), 4-5165
			77	MO164-167	Juan Montoya (3532), 4-5391
			78	MO168-171	Frank Dean (5152), 6-5559
			79	MO172-175	William Ulrich (5114), 4-3363
			80	MO176-179	Stanley Meyer (5171), 6-0570
			81	MO180-183	Richard Smith (7233), 4-4476

Note: Currently there are no sectors 47 and 70.

(Continued from Page One)

## Sector Chiefs

emergency," Max continues. "Emergencies usually are time-sensitive; therefore, prompt, efficient action by the Sector Chief and sector team can lessen the consequences, maybe even eliminate the need for an escalating response [fire trucks, STOP force, etc.]." Sector Emergency Response Teams include the chief and assistant chief, building captains (if the sector covers a big area), and evacuation and fire teams.

What determines which people and buildings constitute a sector? Usually, explains Max, the decision's made by grouping together buildings that house similar activities in the same general area. The Director whose organization daily uses the most facilities (or those presenting the greatest hazards) in a sector appoints the Sector Chief for the area.

### All Shapes and Sizes

The 80 Emergency Sectors at Sandia come in all shapes and sizes — from Sector 51, which includes all buildings and environmental testing facilities in three-sq.-mi. Area III, to Sector 13, which includes only Bldg. 814 — home of the LAB NEWS office.

Sector populations vary too; for example, Sector 25 in Area I includes the 770+ employees housed in those large, relatively new buildings on the "south campus": Bldgs. 820, 821, 822, and 823. In contrast, there's Sector 34 (Bldg. 835), with a total of just 10 employees.

"At a place as large as Sandia, it's very important to have key people out there who 'know the territory,'" says Max. "The person in charge has to have an in-depth knowledge of the area — about the presence and location of hazardous material or toxic chemicals, for example, and shutdown procedures for equipment in case something goes wrong. The Sector Chief, alternate chief, and all members of the Sector Emergency Response Team need to know where emergency equipment is located and how to use it."

### Duties Are Many

The emergencies to which a Sector Chief might have to respond fill a seemingly endless list: medical emergencies, fire, hazardous material accidents, high explosive incidents, radiation threats, bomb threats, release of toxic material, civil disturbance, natural occurrences such as earthquakes or tornadoes, and more. "The list goes on and on," says Max.

Sector Chiefs' duties are many, according to Max. "Not only are they responsible for notifying the prop-

er people when trouble first appears in their areas," he says. "They also have several other time-consuming chores." Among those activities:

- Select and organize a Sector Emergency Response Team
- Develop and maintain a Sector Emergency Plan
- Oversee emergency training exercises/drills in the sector
- Document emergencies
- Document training exercises and critiques
- Document and test emergency communication systems

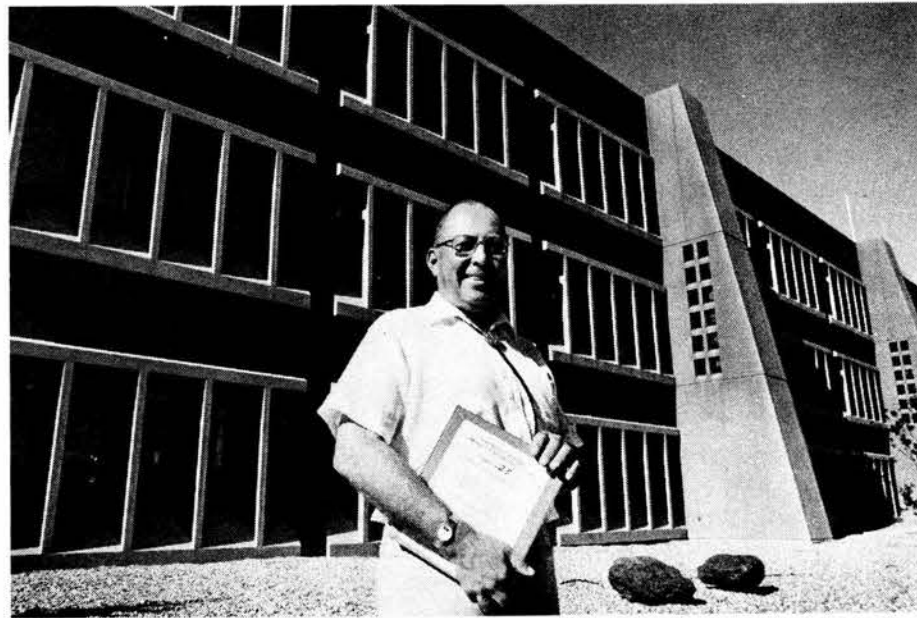
"Sector Chiefs spend time above and beyond the call of duty on behalf of others," Max continues. "But emergency operations can't run smoothly without the help of all employees. First, people should make it a point to know who their Sector Chief and Emergency Response Team members are [see "Who's Your Sector Chief?"]. They also need to learn which equipment in the area poses a possible danger — environmental or otherwise — and where emergency equipment is located. Also — they should get a bead on the nearest building exit, in case rapid evacuation is required."

Pat Baca (3438), who coordinates Sector Chief training and training exercises in individual sectors, says, "We try to run training exercises in the sec-

(Continued on Next Page)



'EMERGENCY-ORANGE' CAPS will be issued to Sector Chiefs and their assistants at training sessions beginning next month. Here, Max Martinez tries one on for size, with a little assistance from Pat Baca. Both are members of Emergency Preparedness, Security Operations Training Division 3438.



CHIEF JOHN RISSE'S (5213) Emergency Sector No. 25 encompasses Bldgs. 820, 821, 822, and 823 — and the hundreds of employees they house on Sandia's "south campus."

(Continued from Preceding Page)

## Sector Chiefs

tors at least once a year — sometimes more. People should never assume, though, that it's 'just an exercise.' Not long ago we had an honest-to-goodness fire in one of our multistory buildings, and some employees were actually using elevators instead of stairs to exit the place. Elevators, of course, should never be used in the event of fire."

Pat recently published an updated manual for Sector Chiefs. The manual, with an "emergency-

orange" cover, has sections covering sector-specific information (for noting emergency shutdown procedures, location of hazardous materials, handicap assistance requirements, etc.), as well as general emergency procedures that cover everyone at Sandia.

"Starting in August, we'll begin a series of briefings for Sector Chiefs," says Pat. "We'll be training all 78 Chiefs and their alternates at sessions lasting between one and two hours."

The official emergency color — orange — also shows up on baseball caps to be issued during the August training sessions to Sector Chiefs and sector emergency team members. In case of emergency in

an area, they'll wear the caps so they can be easily identified by employees in the sector, as well as members of the Security organization who arrive at the scene to take over on-scene command duties.

"The first minutes of an emergency can be critical," says Max. "That's why it's so important to have Sector Chiefs who can take charge until professional specialists — Security or Medical, for example — arrive. Sector Chiefs are key links in the overall emergency command and control structure at Sandia." ●PW

(Ed. Note: This is the first in a series of articles on Sandia's emergency preparedness program.)

## Take Note

Bob Clem, Director of Exploratory Systems 9100, and former Sandian Bruce Miller were among 15 members of an American Physical Society Study Group that spent a year evaluating the feasibility of full-scale deployment of directed-energy weapons (including lasers and particle beam technology) for the Strategic Defense Initiative (SDI). The Study Group's report, delayed by a seven-month classification review, recently concluded that, "even in the best of circumstances, a decade or more of intensive research would be required to provide the technical knowledge needed for an informed decision about the potential effectiveness and survivability of directed-energy weapon [DEW] systems." Anti-missile defense, the report also stated, would require that many technologies crucial to DEW systems be greatly improved. The panel did not specifically examine early deployment of kinetic-energy weapons (KEW) as an SDI option. C. Kumar N. Patel, Bell Labs, was co-chair of the Study Group. Charles Hebel, who served as executive officer for the Group, was Director of Physical Research at Sandia in the late 1960s while on leave from Bell Labs; he is now with Xerox Corporation.

\*\*\*

Robert Martinez (7472) was recently elected international secretary of the Society for the Advancement of Material and Process Engineering (SAMPE) for 1987-88. Robert's also education chairman of the local SAMPE chapter.

\*\*\*

Three Sandians presented invited papers at a recent symposium on parachute system technology in Munich, Germany. Carl Peterson (former supervisor of Parachute Systems Div. 1552, now 1520), Don Johnson (DMTS, 1552), and James Purvis (1552) lectured on a variety of topics: supersonic aerodynamics; computer simulations of parachute dynamics; test procedures, sensors, and facilities; materials; and advanced parachute design. Some 70 people — most from Europe — attended the symposium, which was cosponsored by the West German Department of Defense, the West German Aerospace

Research Establishment, and the University of Minnesota.

\*\*\*

Jim Mitchell (3160) served as a press liaison officer for the recent transatlantic flight of the Virgin Atlantic Flyer hot-air balloon, the same role he served for three earlier transatlantic flights: those of the helium-filled Double Eagle I and II and Rosie O'Grady (a solo flight).

\*\*\*

Sandians involved with SDI programs may be interested in a new book, *Better a Shield than a Sword*, by Edward Teller, a Manhattan Engineer District principal, later a co-founder of LLNL, and now an honorary associate director of LLNL. One source for the book (\$19.95) is the Little Professor bookstore (Lomas and San Pedro).

\*\*\*

New officers of the Albuquerque Chapter of the National Assn. of Accountants are Shanna Cernosek

(142), VP of Communications and Public Relations; Ilene Mathes (4021), meetings chairman; and Arlene Schaefer (155), ICMA (Institute of Certified Management Accountants) program chairman. Arlene's also a member of NAA's National Committee on Education in 1987-88.

\*\*\*

The Rio Grande Chapter of the Project Management Institute (PMI) meets the third Tuesday of each month to discuss various types of project management systems and how people can work together in more productive ways. "PMI interacts with companies all over New Mexico to find out which systems work best in certain kinds of industry," says PMI membership VP Ken Hanks (7866), who invites interested people to join the group at its next meeting at Comfort Inn (13031 Central NE) on July 21 at 5:30 p.m. Dinner's at 7 p.m., and Chuck Gamble, N. M. Territory Manager for Metier Management Systems, Inc., will discuss "The Future of Project Management Systems." For reservations (price varies with menu selection), call Dawn Johnston (7866) on 6-8483 by July 20.

\*\*\*

Tonya Wichhart (122) was recently elected president of the Albuquerque Chapter of the American Society of Women Accountants.

\*\*\*

Wilson Brooks (9142) will be performing in "Top of the Charts," a live musical review featuring pop music hits of the late 50s and the 60s. The Carlaw Enterprise review takes place at the Ramada Classic Hotel tomorrow and August 1 at 8:15 p.m., this Sunday at 2:15 p.m., and August 2 at 2:15 p.m. and 7:00 p.m. Tickets are \$7-9 at the door. For more information, call producer Larry Posey (2321) at 292-5363.

Larry has a different role in another Carlaw Enterprise production: He'll be playing sax at a Big Band dance coming up this Sunday night at 7 in the same hotel. Admission to "The Big Bands are Back" is \$5 in advance or \$6 at the door. Larry's accepting reservations at the number given above.

## Welcome

Georgia  
Paul Claassen (9223)

Iowa  
Christopher Welcher (2855)

## Sympathy

To Ernestine Dean (155) on the death of her mother in Yuma, Ariz., June 22.

To Larry Tichenor (7472) on the death of his mother-in-law in El Paso, June 24.

To Paula Stronach (5142) on the death of her son, to Tonimarie (3151) and Steve (7555) Stronach on the death of their brother, and to Dorothy Stronach (3735) on the death of her brother-in-law in Los Gatos, Calif., June 26.

To Mary Bachicha (6313) on the death of her sister-in-law in Barstow, Calif., July 7.

The blue, 500-gallon disposal tank for used motor oil was carted away last week from its familiar site near the Eubank gate. With it, a handy procedure for recycling waste oil from employees' cars, trucks, motorcycles, and lawn mowers went down the drain, some 9000 gallons and six years after Stan Brooks (ret.) put it in place. And another good idea falls prey to misuse by a few, causing inconvenience to many.

The idea of installing an oil-collection point for use by employees and contractors came from Glen Haines (ret.) in a 1980 Feedback letter. (At that time, Sandia already was giving away the Motor Pool's used oil to Mesa Oil Inc. for recycling.)

'Old Blue' was always meant to hold only used motor oil; the sign stenciled on the side said as much. But recently, someone started adding hazardous chemicals — unidentified solvents, mainly, as much as half a tank's worth at a time — and the disposal service had to be halted.

"We routinely sampled the oil for PCBs [polychlorinated biphenyls, a hazardous substance] and never found any," says Phyllis Pei, staff member of Environmental Protection and Hazardous Waste Management Division 3314. "However, the solvents recently dumped into the oil were visibly separating out into layers."

### Contamination Looked Hazardous

The latest oil-recycling contractor, Approved Drain Oil Service, couldn't handle the contaminated oil in its recycling process. Any handling of such oil, actually hazardous waste in disguise, is regulated by the Environmental Protection Agency, which issued disposal instructions for used oil last November. "Treating the mixture as hazardous waste would cost an average of \$6500 each month for chemical analysis, out-of-state transport, and incineration," says Phyllis.

That's a far cry from providing a container on a concrete pad for easy, safe disposal of used oil from road or home use. The procedure involved having a contractor collect the oil once or twice a month and

## Feedback

*Q. Most Sandians have occasionally noticed where some waste could be avoided or where some money could be saved. Usually the person noticing the problem is not in a position to bring about the necessary changes to accomplish a more efficient operation, and the use of normal channels to accomplish the changes is difficult and time-consuming. If there were some incentive (other than a warm feeling, possibly a pat on the back) to make operations more efficient, Sandia could save a considerable amount of money and assets. I propose a "suggestion box" patterned after "Feedback." Then, if management adopts a suggestion, the employee suggesting it would receive a portion of the savings for a year (perhaps 33 percent) or a comparable bonus. If the suggestion is not adopted, the employee would be notified and the reasons given.*

A. Sandia did have a cost-savings recognition program in the 60s. The formal program was discontinued because most Sandians consider such activity a part of their job assignment. R&D activities in the high-technology arena require the dedicated efforts of a wide variety of specialists and support groups. Therefore, a savings award system is often difficult to administer equitably.

I appreciate your interest in waste avoidance, cost savings, and efficiency in general. I encourage you to bring your suggestions to your management or the management of the functional activity involved. "Feedback" is another avenue for bringing a suggestion or inquiry to the attention of the appropriate organization.

Ralph Bonner - 3500

## Old Blue's No More



**SQUEAKY CLEAN** when it was first plunked into place, the oil disposal tank served Base employees well for about six years. A concrete pad was made during that time to prevent any overflow from reaching the ground.



**LAST POUR'S FOR ME:** Ron Hamilton (3314) was on hand to bid 'Old Blue' goodbye, right before the tank was removed. Now Org. 3314 is offering Sandia employees and contractors a list of remaining collection sites for used motor oil.

haul it away for conversion to new oil. (Recycling saves about half the energy needed to produce new oil.)

Initially, the Labs gave the used oil away. But, after 1985, Property Reapplication Division 3414 (formerly Reclamation) sold the oil for five to 35 cents per gallon — depending on fluctuations in domestic oil prices.

### Alternate Collection Sites

Although the blue tank is no more, "Sandia is still concerned about protecting the environment and conserving energy," says Bill Burnett, manager of Environment, Safety, and Health Department 3310. "We'd like to discourage everyone from just dumping their oil out on the ground, anywhere. So we're offering a list of alternative collection sites that was provided by the City of Albuquerque."

A leaflet listing 45 sites in all quadrants of the city will be sent to any employee who requests one by calling 6-2654 or 6-2295. The leaflets are also available in the cafeteria and the Bldg. 802 lobby.

A final note: Because the recycling site has been dismantled, there is no longer even a faint pretext for dumping used car and motorcycle batteries at the site, as some have done in the past. Employees and contractors are urged to turn this trash into cash: Battery recyclers in town will buy the cadavers. For example, A-1 Battery Warehouse pays 50 cents for

each car battery, and Mor-Co Battery Co. pays a dollar apiece for car batteries and a quarter for motorcycle batteries.

Also, some of the auto repair centers listed as alternatives for oil disposal may have arrangements for reprocessing batteries. ●ID

### Congratulations

To Marie Garcia and John Henfling (1554), married in Albuquerque, June 6.

To Carla Holdcroft and Scott Slezak (6427), married in Champaign, Ill., July 4.

To Lynda and Bruce Hawkinson (3162), a daughter, Kelsey Marie, July 9.

July 17 — UNM Summerfest Festival of New Plays, "Girl"; 8 p.m., Rodey Theatre, 277-4332.

July 17-19 — National Youth World Paint Horse Show and National Championship Paint Horse Show, presented by American Paint Horse Association; Exhibit Complex and Horse Complex, NM State Fairgrounds, 265-1791.

July 17-26 — "The Little Prince"; 7:30 p.m. Fri.-Sat., 2 p.m. Sun.; Albuquerque Little Theatre, 242-4750.

July 17-26 — Exhibit, "Clay in '87," New Mexico Potters Association; upper gallery, UNM Art Museum, 277-4401.

July 17-26 — "Last Days at the Dixie Girl Cafe," Robin Swicord comedy; benefit for NM Multiple Sclerosis Society; 8 p.m. Thurs.-Sat., 6 p.m. Sun.; Keystone Theatre (3211 Central NE), 255-6819.

July 17-26 — "The Bat," mystery by Mary Roberts Rinehart; 8:30 p.m., Corrales Adobe Theatre, 898-3323.

July 17-27 — Exhibit, "Santa Fe Trail," photographs by Joan Myers, an exhibit of images along the 1500-mile journey from Missouri to New Mexico, sponsored by the Smithsonian Institution Traveling Exhibition Service; 11 a.m.-5 p.m. Tues.-Fri., 1-5 p.m. Sat. & Sun.; Albuquerque Museum, 242-4600.

July 17-31 — Exhibit, "Maya: The Image from the

# Supervisory Appointments



DuWAYNE BRANSCOMBE (2152), KATHLEEN McCAUGHEY (2543), and OTIS COX (130)

DuWAYNE BRANSCOMBE to supervisor of MOS IC Product Engineering Division 2152, effective June 1.

DuWayne joined Sandia in June 1960 as a member of the Advanced Systems Development Division and transferred to the Product Computer Control Test Equipment Division in 1970. He then joined the Advanced Command and Control Division in 1975 where he worked on the advanced PAL controller. In 1981 DuWayne went to the Special Processor CMOS VLSI Design Division where he was project leader for the Intel ADC51 microprocessor.

He has an AS in EE from DeVry Institute of Technology. He has lectured at UNM on the design of CMOS VLSI circuits, has taught INTEC courses, and is currently teaching an Out-of-Hours microprocessor basics course.

In his spare time, DuWayne enjoys golfing, fishing, and western and square dancing. He and his wife Lois have three daughters and live in the NE Heights.

\* \* \*

KATHLEEN McCAUGHEY to supervisor of Special Projects Division 2543, effective May 16.

Kathleen joined the Labs in June 1977 as a member of the Track and Cables Division. In 1979 she joined the Special Projects Division where her responsibility for the past three years has been the development of the MC3831 dual stronglink assembly for the Trident II W88/Mk5 program.

She has a BS in civil engineering from UNM and earned an MS in ME from Stanford through Sandia's One-Year-On-Campus (OYOC) program.

Kathleen is a member of the American Society of Mechanical Engineers (ASME). She is past chairperson and currently Member Interests Chairman on ASME's Region XII Operating Board. She is also Region XII's National Nomination Committee First Alternate. Kathleen is secretary for the UNM Engineering Alumni Board and past president of the Engineering Society's President's Council.

Her spare time activities include porcelain doll-making; she also has a ham radio technician's license. Kathleen lives in the NE Heights.

\* \* \*

OTIS COX to manager of Policies and Procedures Department 130, effective July 1.

Otis joined the Labs in June 1963 as a contract auditor. He was appointed supervisor of the Customer and Supplier Accounting Division in August 1979, then supervised the Property Accounting Division from August 1980 until June 1981 when he moved to the Audit Coordination and Compliance Division. He transferred to the Job Evaluation Division in March 1983 and returned to Property Accounting in February 1985. He was supervisor of the Internal Auditing Division from July 1986 until his promotion. Otis has done contract and internal auditing, and has worked on systems and budget program analysis. He was named a senior auditor in 1975.

He has a BS in business from Kansas State University and an MBA from Oklahoma State University. Before coming to Sandia, Otis worked as a field auditor for Continental Oil Company, Ponca City, Okla.

Otis was a member of the United Way allocations panel in 1980 and 1981, served on the Big Brothers/Big Sisters board of directors for three years, and was treasurer for the ECP Committee for four years.

In his spare time, Otis enjoys "being outdoors." He and his wife Agnes have two daughters and five grandchildren. They live in the NE Heights.

\* \* \*

ELAINE GORHAM-BERGERON to supervisor of Reactor Modeling and Regulatory Applications Division 6413, effective May 16.

Elaine joined the Labs in October 1974 as a member of the Solid State Research Department where she did research in small ion diffusion in metals. In 1976 she moved to the Reactor Safety Theoretical Physics Division where she developed models of phenomena relating to reactor safety. While in that



ELAINE GORHAM-BERGERON (6413)

division, she spent a year in France as an NRC delegate to the CABRI Project. In 1984 Elaine transferred to the In Situ Technologies Division where she modeled rock motion during conventional blasting.

She has a BS in physics from Pembroke College at Brown University and a PhD in theoretical and solid state physics from Northeastern University. She is a member of the American Physical Society.

Elaine's spare-time activities include skiing, backpacking, and reading. She lives in the NE Heights.

## Events Calendar

Western World"; 9 a.m.-4 p.m. Mon.-Fri., 10 a.m.-4 p.m. Sat.; main gallery, Maxwell Museum of Anthropology, 277-4404.

July 17-Aug. 2 — "Loot," farce by Joe Orton about criminal activity in England; 8 p.m., Vortex Theatre, 247-8600.

July 17-Aug. 2 — Exhibit, "Mickey McConnell: A Personal View of the Ancient World"; Jonson Gallery (UNM), 277-4967.

July 17-Aug. 2 — Focus Photo Series: Mary Peck, impressions of the Florida Everglades; Albuquerque Museum, 243-7255 or 242-4600.

July 17-Aug. 31 — Exhibit, "From the Center Place: Contemporary Zuni Pottery and Its Makers"; 9 a.m.-4 p.m. Mon.-Fri., 10 a.m.-4 p.m. Sat.; Maxwell Museum of Anthropology, 277-4404.

July 18 — Children's Concert II, "Jack and the Beanstalk," Santa Fe Desert Chorale; 11 a.m., First Unitarian Church (Carlisle & Comanche NE), 884-1801.

July 18 — NM Old Time Ropers, 10 a.m.-4 p.m., Bernalillo County Sheriff's Posse Arena (Edith & El Pueblo Rd. NE), free, 898-7898.

July 18 & 29 — UNM Summerfest Festival of New Plays: "Festival Flamenco '87"; 8 p.m. July 18, 2 p.m. July 29; Rodey Theatre, 277-4332.

July 19 — Movietime at the KiMo: "55 Days in Peking," Westerners trapped in China during the Boxer uprising; 7 p.m., KiMo Theatre, 848-1374.

July 20 — UNM Lecture Under the Stars Series:

"The Trinity Site . . . Atomic Explosion, July 16, 1945," by Prof. Ferenc Szasz; 8 p.m., UNM Central Mall (north of Student Union Bldg.), 277-4706.

July 23 — Arts and Crafts Fair, display of art work from the Bernalillo County Parks and Recreation Summer Youth Program, music, clowns, and special youth performances; 9 a.m.-2:30 p.m., Old Town Plaza, free, 768-4210.

July 23-25 — "Pinocchio," Albuquerque Children's Theatre; 10 a.m. & 2 p.m. Thurs. & Fri., 1:30 & 3:30 p.m. Sat.; Rodey Theatre, 277-3121.

July 24 — Concert III, Santa Fe Desert Chorale, works by Bernstein, Williamson, and Britten; 8 p.m., Keller Hall, 277-4402.

July 24-26 — Albuquerque Arts & Crafts Show; 10 a.m.-7 p.m. Fri. & Sat., 10 a.m.-5 p.m. Sun.; New Exhibit Hall, NM State Fairgrounds, free, 831-9574.

July 24-Aug. 2 — "Who Killed Don Jose?" (world premiere mystery by Rudolfo Anaya), La Compania de Teatro de Albuquerque; 8 p.m. Tues.-Sat., 2 p.m. Sun.; Menaul School (Menaul & Broadway NE), 242-7929.

July 24-Aug. 8 — "Two by Two," musical by Richard Rogers about Noah's Ark, presented by Albuquerque Civic Light Opera Assn.; 8:15 p.m. Fri.-Sat., 2:15 p.m. Sun.; Popejoy Hall, 345-6577 or 277-3121.

July 25 — Summerfest '87: Carpathian and Middle

Eastern Night, 5-10 p.m., Civic Plaza, 768-3490.

July 25 — Santiago Feast Day with rooster pull, Acoma Pueblo, 552-6004.

July 25 — St. James Grab Day: San Felipe Pueblo, 867-3381; Laguna Pueblo, 552-6654.

July 25 — Santiago Grab Day: Santa Ana Pueblo, 867-3301; Santo Domingo Pueblo, 465-2214.

July 26 — Sunday Jazz at Madrid, featuring the Vintage Jazz Band and the Body & Soul Quartet; 3 p.m., Oscar Huber Memorial Ballpark (Madrid), 842-6659.

July 26 — St. Ann Feast Day: Corn Dances, Santa Ana Pueblo, 867-3301; Harvest Feast, Seama Village, Laguna Pueblo, 552-6654.

July 26 — Team Roping, 10 a.m.-4 p.m., Bernalillo County Sheriff's Posse Arena (Edith & El Pueblo Rd. NE), free, 898-7898.

July 26 — Movietime at the KiMo: "Roman Holiday," romantic comedy starring Audrey Hepburn and Gregory Peck; 7 p.m., KiMo Theatre, 848-1374.

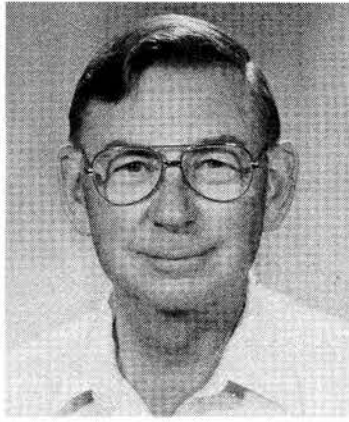
July 27 — UNM Lecture Under the Stars Series: "Stories of the West," by storyteller Kay Nagesh; 8 p.m., UNM Central Mall (north of Student Union Bldg.), 277-4706.

July 29-Aug. 1 — Kachina Morgan Classic Horse Show; 7 p.m. Wed., 8:30-10:30 p.m. Thurs., 8:30 a.m.-4 p.m. Fri.; Horse Arena, NM State Fairgrounds, free, 753-3696 or 897-0087.

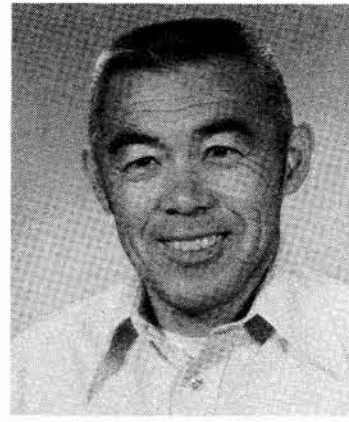
# MILEPOSTS

## LAB NEWS

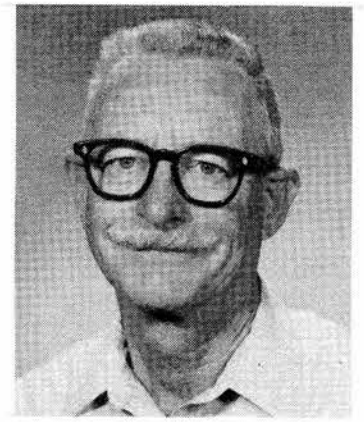
JULY 1987



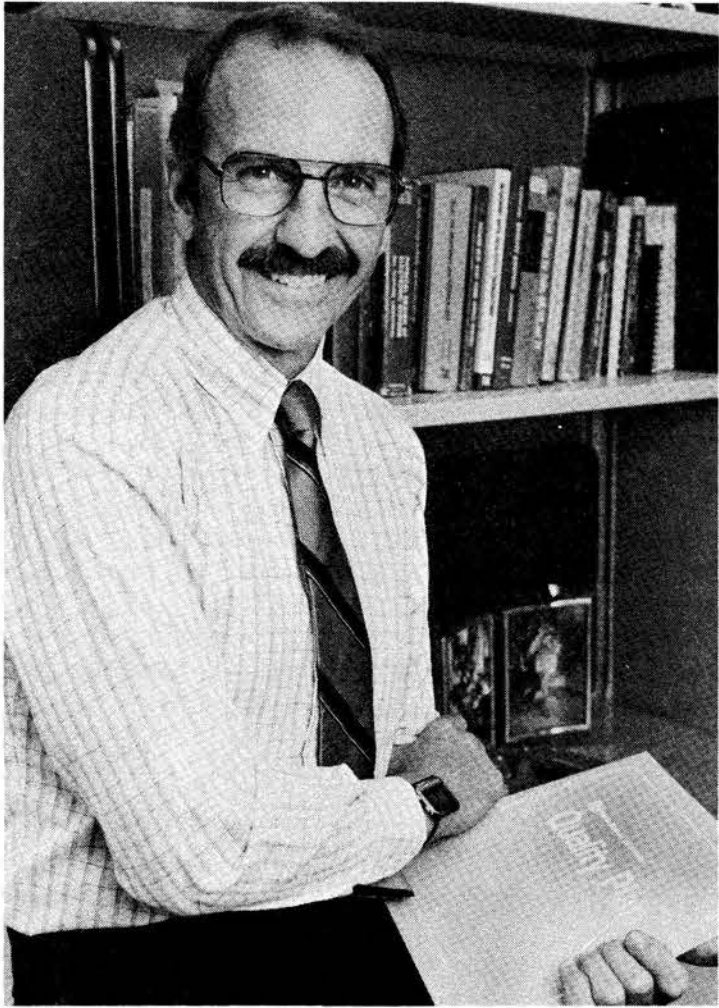
E. E. Alexanderson (9141) 30



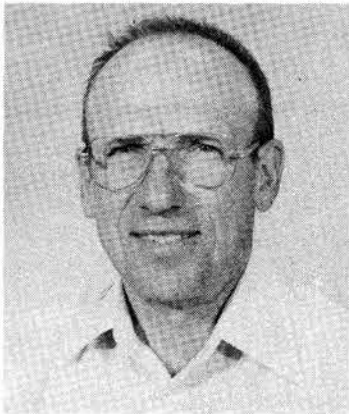
Kazuo Oishi (5152) 25



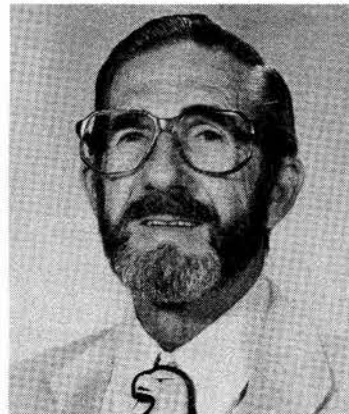
Ralph Wenzelburger (3741) 25



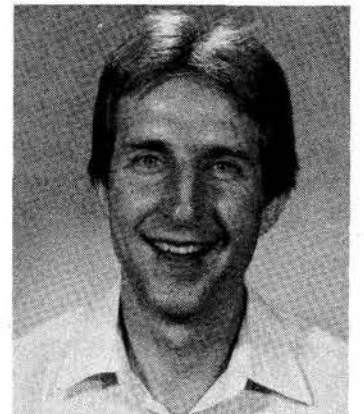
Dave Bushmire (7252) 30



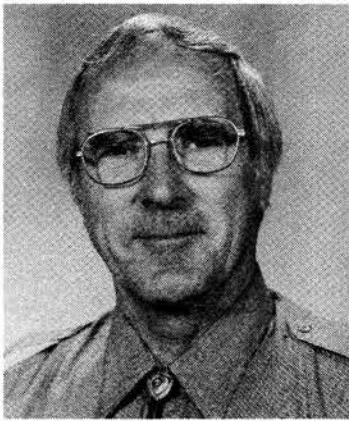
Chuck Gebert (2532) 30



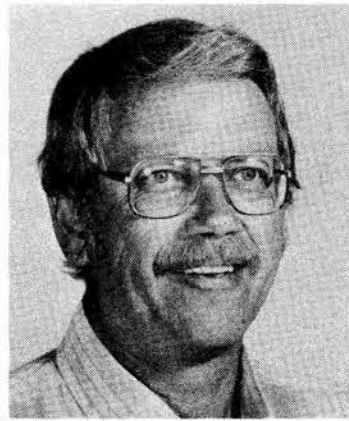
Dave Miller (5248) 35



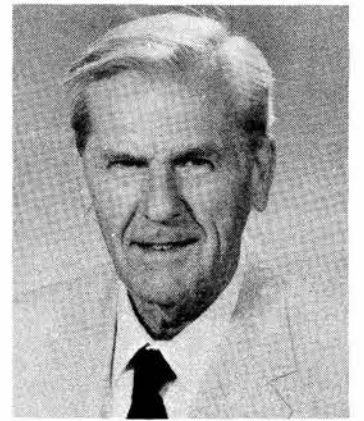
George Wagner (5231) 10



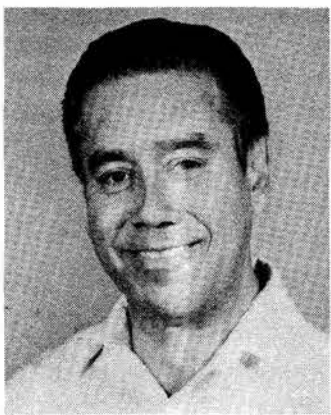
Al Tucker (5262) 35



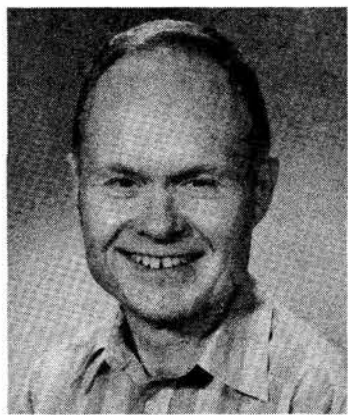
Palmer Nelson (7124) 25



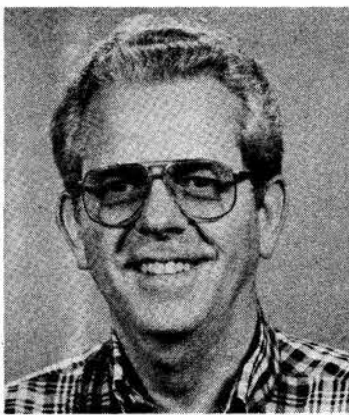
Charles Jennings (7413) 30



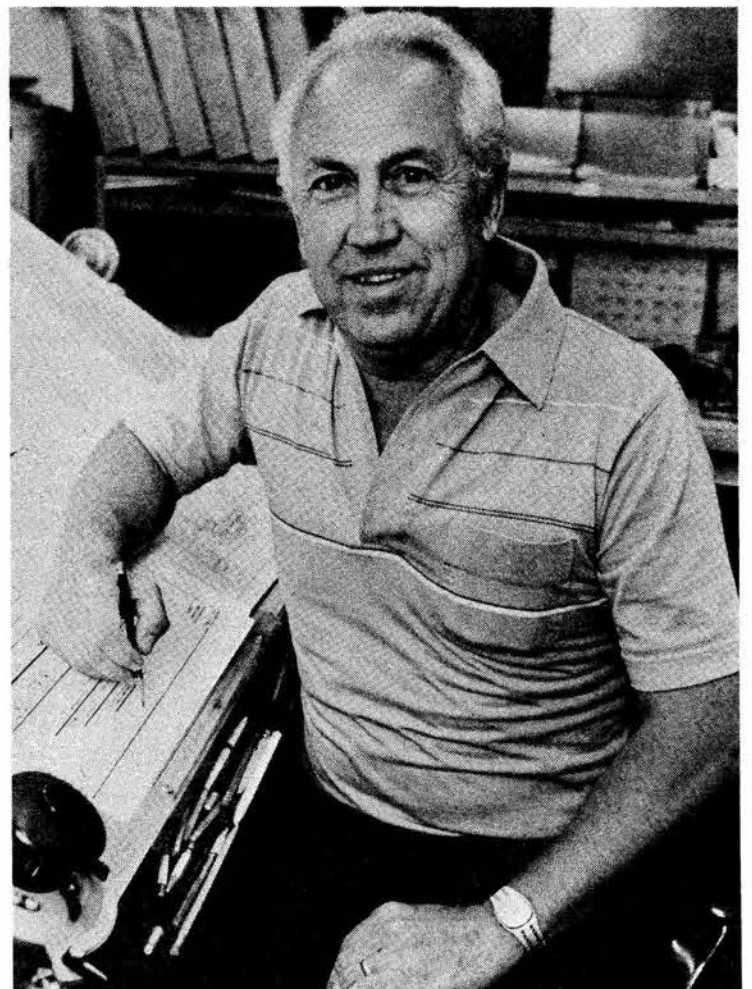
Fred Sena (6323) 25



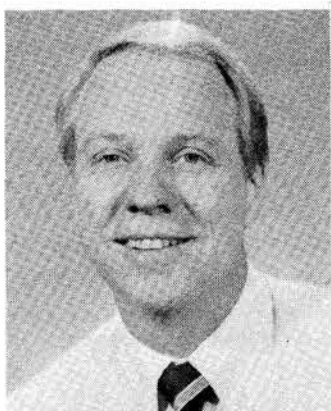
Mike Kittredge (5141) 25



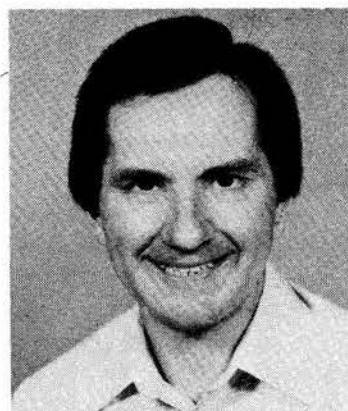
Don Johnson (DMTS, 1552) 30



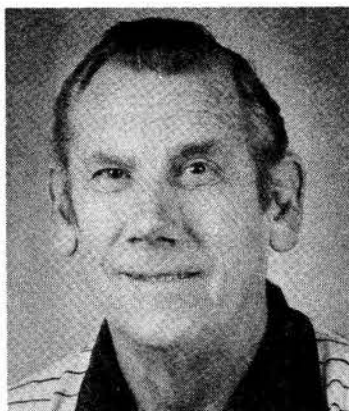
Louis Archuleta (3155) 20



Paul Thompson (9115) 20

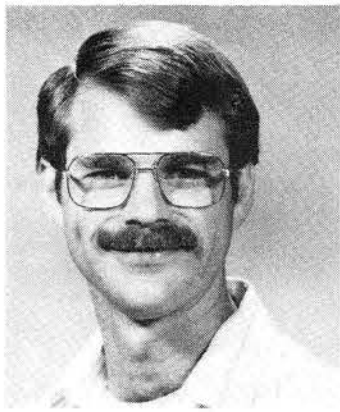


Dennis Berry (6448) 10

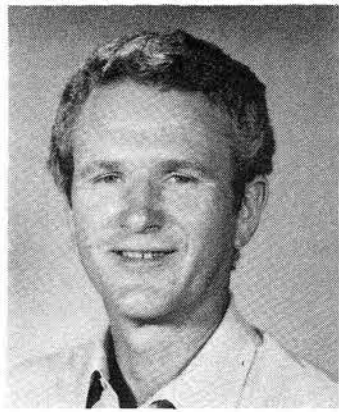


Dick Feil (8461) 25

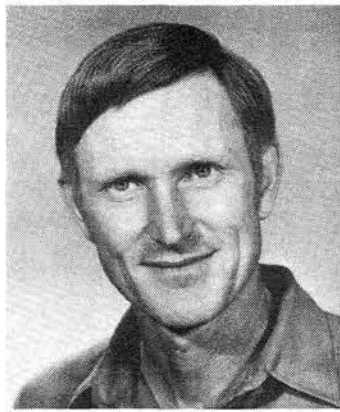




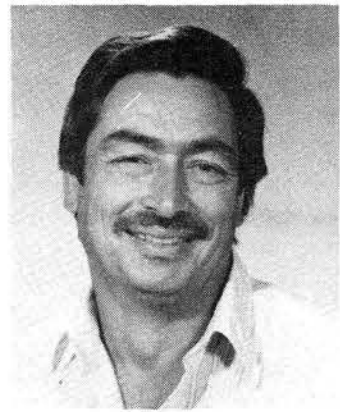
Gerry Mitchell (9142) 10



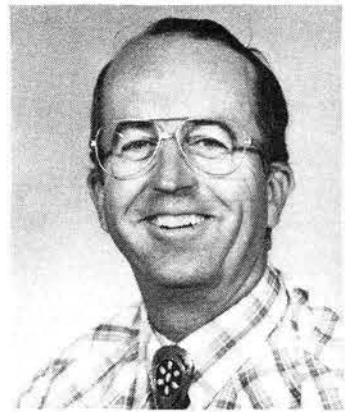
Dave Shirey (5267) 25



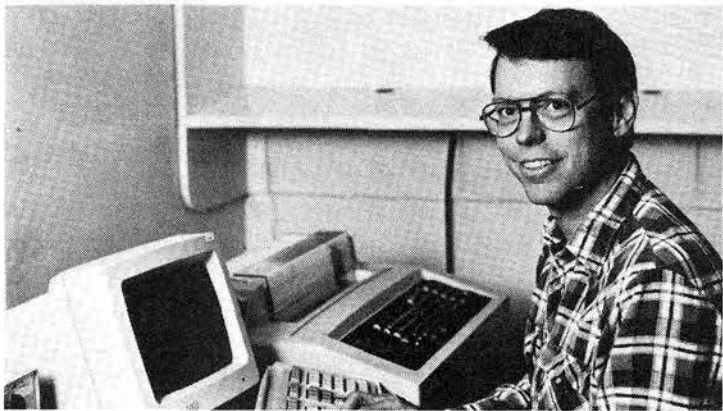
Ron Madsen (5234) 25



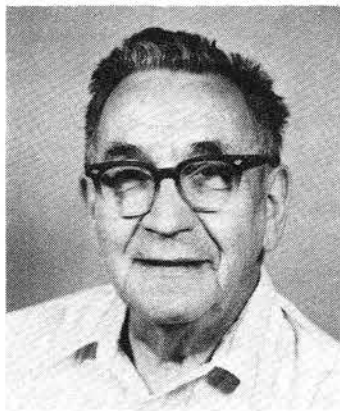
Florindo Salas (9131) 25



Charles Greenwood (DMTS, 9211) 25



Larry Ebinger (7121) 20



Maury Karnowsky (1832) 35



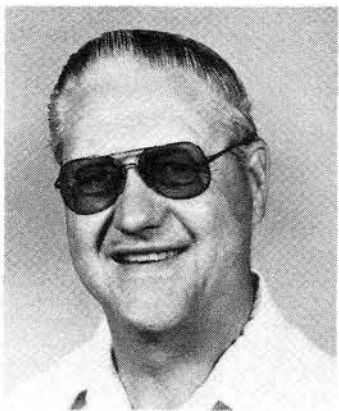
Wil Vandermolen (2513) 30



Dale Breeding (9243) 25



Lewis Bartel (6242) 20



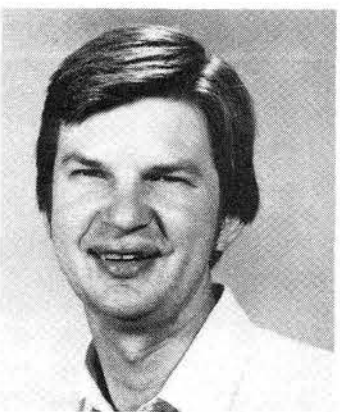
Tom Oglesby (3151) 25



Gloria Velasquez (3425) 20



Manuel Archuleta (2852) 20



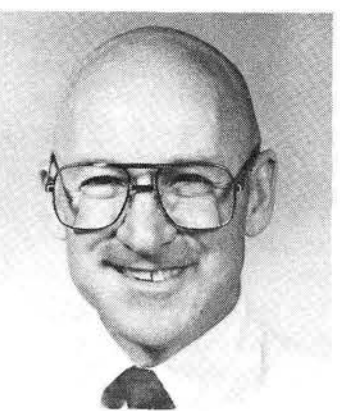
Steve Rodgers (2144) 10



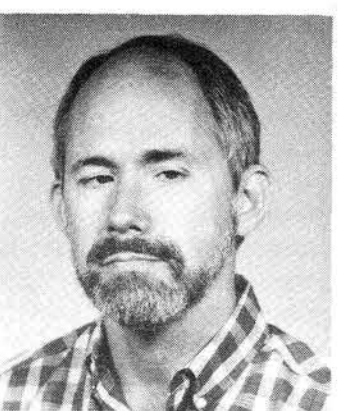
Johnny Duncan (5152) 25



Jim Scheibner (DMTS, 5231) 30



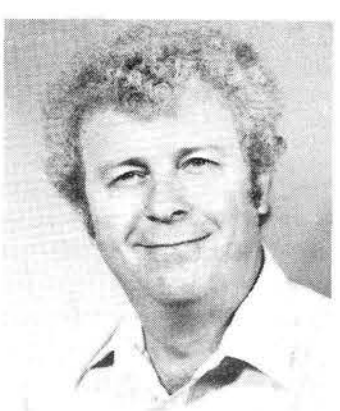
Gene Church (7231) 30



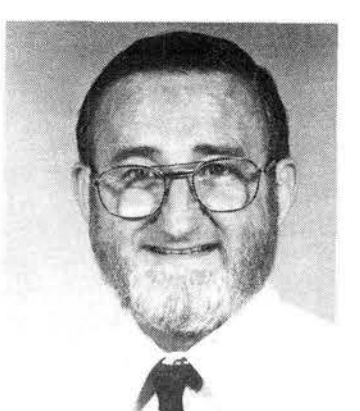
John Finger (6241) 25



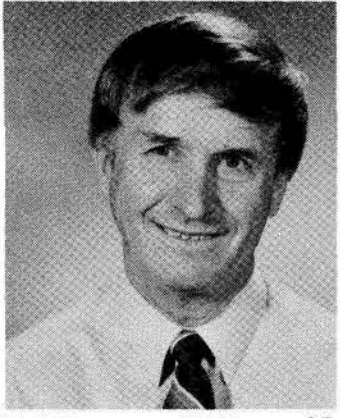
Paul Fjelseth (9144) 30



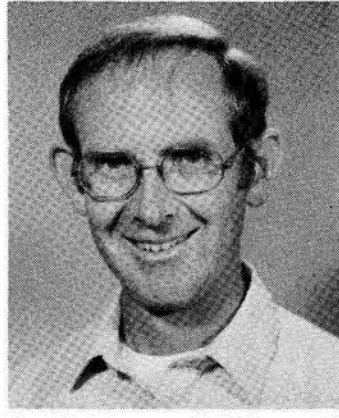
Rick Beckmann (5238) 20



Howard Jones (5154) 30



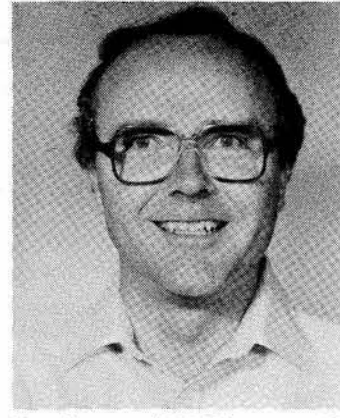
Earl Simonson (122) 35



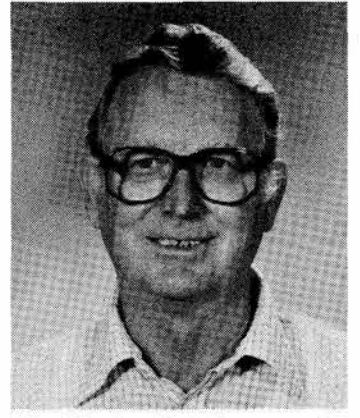
David Johnson (1253) 10



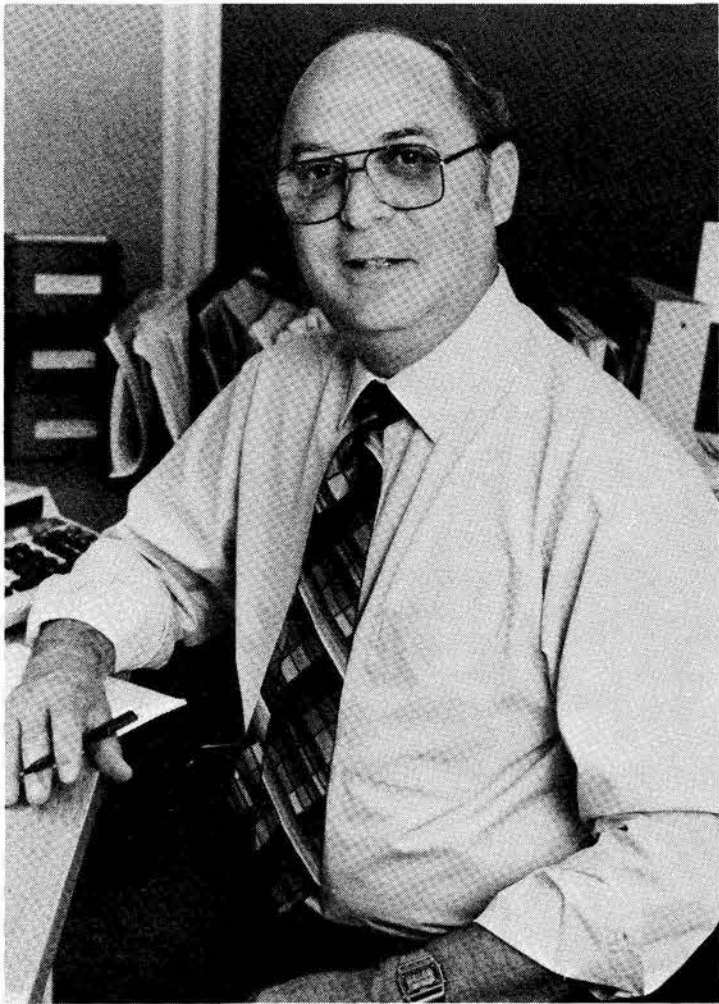
Anna Marie Carroll (7135) 15



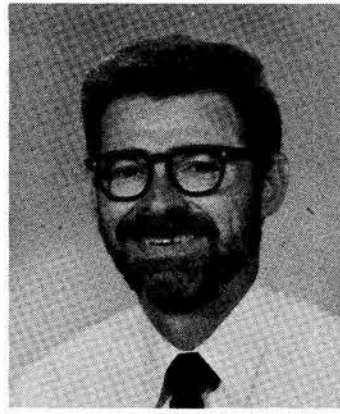
Don Larson (1556) 35



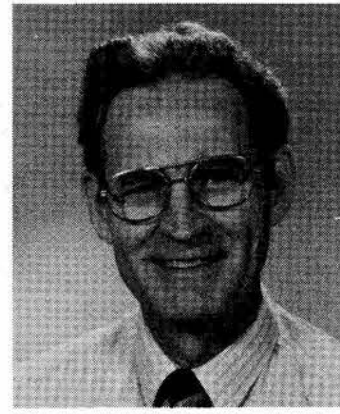
Max Hodge (2825) 35



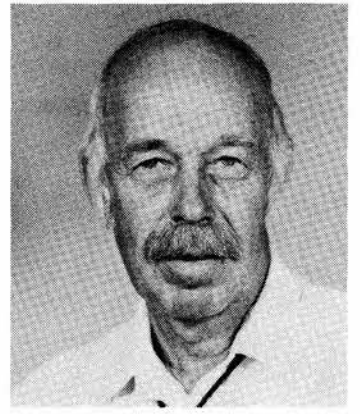
John Sisneros (144) 35



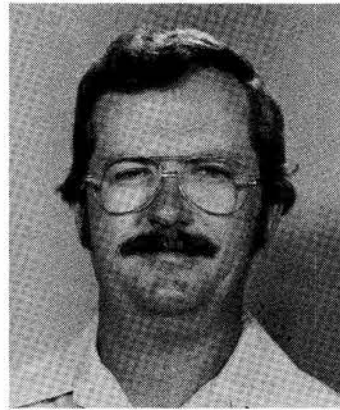
John Guth (2124) 25



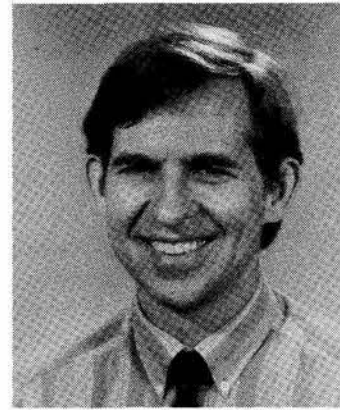
David Holt (9212) 25



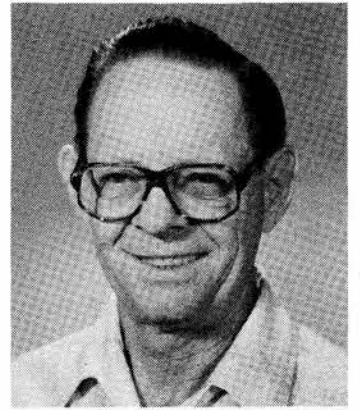
Bob Sonnenberg (7210) 30



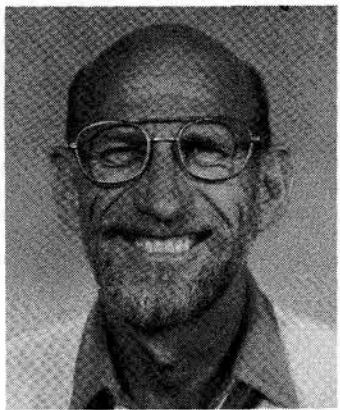
Dannie McNeill (9143) 15



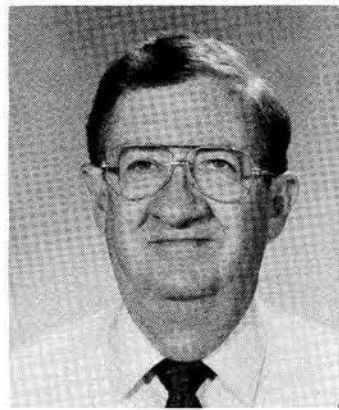
John Covan (5161) 10



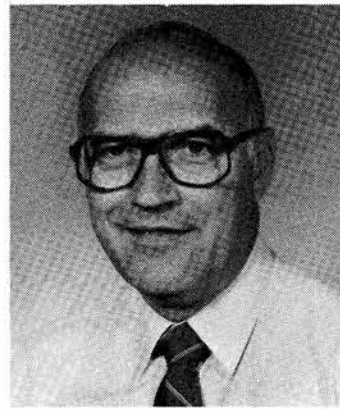
Joe Keiner (7266) 30



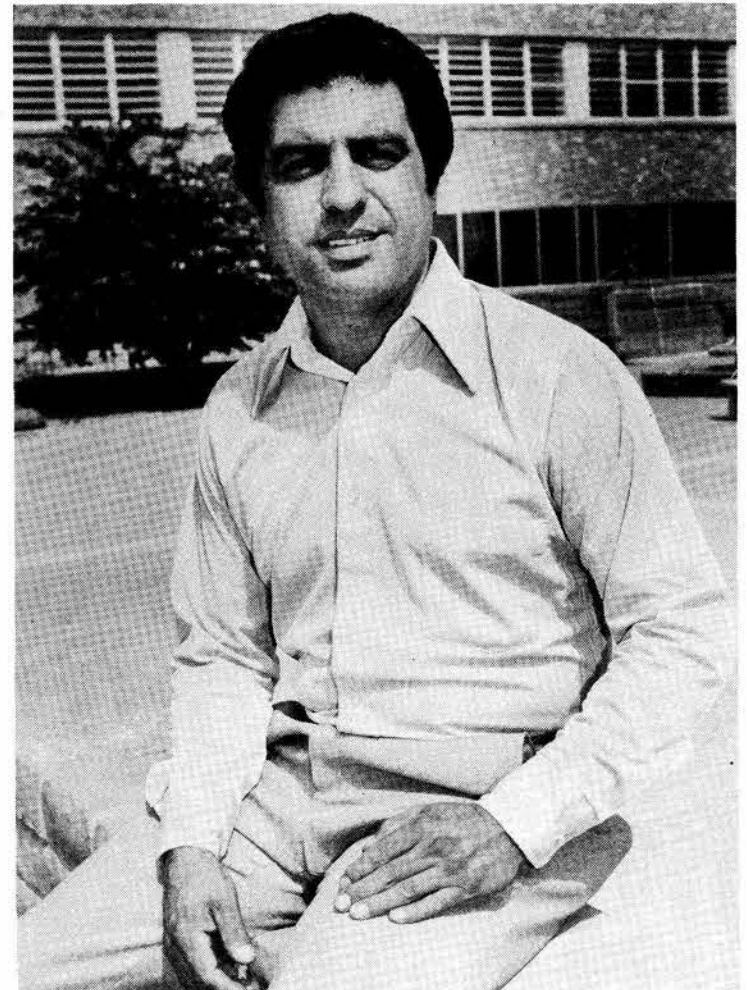
Mark Percival (9115) 20



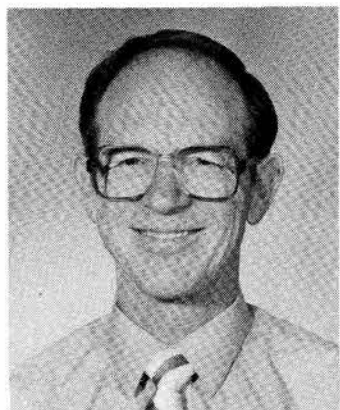
Chuck Smith (7262) 35



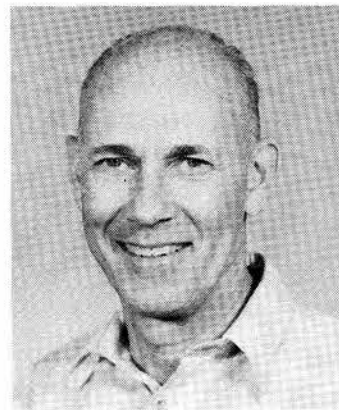
Tom Evans (2311) 25



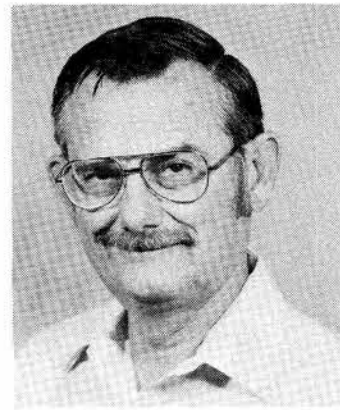
Frank Padilla (7812) 20



Norris Rose (9120) 30



Dale Buchanan (6257) 30



Chad Looney (5142) 35

**Deadline: Friday noon before week of publication unless changed by holiday. Mail to Div. 3162.**

**Ad Rules**

1. Limit 20 words, including last name and home phone.
2. Include organization and full name with each ad submission.
3. Submit each ad in writing. No phone-ins.
4. Use 8 1/2 by 11-inch paper.
5. Use separate sheet for each ad category.
6. Type or print ads legibly; use only accepted abbreviations.
7. One ad per category per issue.
8. No more than two insertions of same ad.
9. No "For Rent" ads except for employees on temporary assignment.
10. No commercial ads.
11. For active and retired Sandians and DOE employees.
12. Housing listed for sale is available for occupancy without regard to race, creed, color, or national origin.

**MISCELLANEOUS**

WALKER, nonfolding, \$20; 5-light, wood-trim chandelier, \$15; Kenmore canister vacuum, \$20; Early American couch and chair, \$100. Colgan, 344-3776.

AQUARIUM, 29-gal., hexagon, complete w/heater, filters, pump, mirrored back, and matching stand, \$125. Hall, 888-0513.

COUCH, LOVESEAT, chair set, \$250; double mattress, box spring, frame, \$65; maple desk, \$20. Lagasse, 293-0385.

SCHIPPERKE PUPPIES, born May 13, championship bloodlines, parents on premises, \$150. Walker, 281-9587.

HAMSTER CAGE, for single hamster only, spinning wheel included. Maestas, 831-4072 after 5.

HORSE, black gelding, 11 yrs. old, half thoroughbred hunter-jumper. Hughes, 265-1698.

STUDENT FURNITURE: desk, chair, chest, console, 2 book racks, night table, solid wood, walnut-stained, \$250. Jones, 881-8341.

GOLF CLUBS: 1986 PGA irons, Cameron, used twice, reg-DO-DI, 3-PW, & SW, \$310; 1985 PGA Ryder Cup II, stiff-S-DI, \$210; H&B driver, Citation, \$45; 22" rotary electric mower, \$75. Stang, 256-7793.

MAN'S ROLEX WATCH, gold & stainless, \$1000 OBO. West, 242-2561.

PIANO, Baldwin Hamilton vertical, walnut finish, w/bench, \$2450. Shagam, 298-2163.

LIFE VESTS (PFDs): Stearns "Sans Souci"; type III; zipper plus belt, adjustable; adult sizes: medium, \$25; x-large, \$15. Schkade, 292-5126.

CANON AE-1 camera, Sigma mini zoom, 39-80mm w/macro, Vivitar model 283 flash unit, and 2x-4 Vivitar extender, \$175. Horton, 884-8989.

PORT-A-POTTI, new, \$45. Magnuson, 821-5330.

TWO-MAN BACKPACK TENT, nylon, A-frame type with window, aluminum poles, lightweight, carry sack, \$20. Dowdy, 294-1278.

ORGAN, Kimball, Series 1000, \$650. Mitchell, 884-4219.

COUCH, Homestead House, blue, quilted chintz fabric, goes with Traditional and Country, more than \$1000 new, \$440. Biffle, 293-7043.

SOFTWARE, latest versions for PCs: Sidekick, Super Key, Microsoft Windows, and Microsoft Multiplan; original manuals included. Luther, 293-4462.

FREEZER, \$200; small desk and chair, \$25; hay, \$2.75/bale; will trade for building material. Lackey, 869-9333.

KING-SIZE WATER BED, dual waveless mattresses, dual heaters, plush velvet side rails, \$100 OBO. Fenstermacher, 298-9050.

CAR RADIO, Panasonic AM, FM, CB, \$50; power supply, +5v, -12v, +24v, \$15; brass, .45 ACP, 4.5¢ each. Hubbard, 842-9431.

CANVAS TENT, Camel, for car camping, outside aluminum frame, 7' x 7' x 6', \$45; rubber fishing waders, chest-high, new, \$35; clarinet, \$45. Reid, 268-6506.

GAS STOVE, Tappan, 2 years old,

white, \$300 OBO. Toupal, 266-1549.

QUEEN-SIZE WATER BED, dark pine, matching headboard with mirror and two lighted compartments, includes linen, heater, bumpers, \$225. Seamons, 256-0375.

TWO-MAN BACKPACK TENT, Four Seasons, used once, \$200; utility trailer from 3/4-ton PU bed, \$200. White, 877-4149.

ELECTRIC LAWN MOWER, \$45; Oriental rug, 8x10, green, rust, ecru, \$50. Hill, 294-7534 or 298-0533.

PORTABLE DISHWASHER, \$60; twin mattress and box spring, \$75; weights, pool accessories, walkie-talkie w/mike and antenna. Hueller, 296-0976.

TWO FOLDING COTS, w/travel covers; two security gates, 32" high, 3' wide (can expand to 5'). Herron, 292-6882.

FOUR CEMETERY LOTS, adjoining, Sandia Memory Gardens, \$1400. Kerr, 299-7527.

DOG KENNELS, 12' x 12' x 6', 3 gates, 1 extra panel, \$150. Kilgore, 296-5148.

MOVING BOXES, all sizes, for books, dishes, linens, wardrobe. Carter, 293-6750.

STONE LITHOGRAPH, unframed original by Jacque Evans, titled "Boy With Dog," value \$500, sell for \$350 OBO. Rieger, 831-0407.

SHINGLES, 320 lb./sq., weathered shake-style, 1100 sq. ft., \$440. Caffey, 296-3320.

POTTER'S WHEEL, kick-powered and sand-filled fly wheel, size adjustable, \$100; beginner's guitar w/case, \$50. Bray, 292-2410.

TWO SWAMP COOLER MOTORS, 1/2 hp, single-speed: 2-yr.-old, \$20; age unknown, \$10. Van Deusen, 291-8196.

CHARVOZ DRAWING TABLE, Omni model, 36" x 48", 6 mos. old, cost \$200, sell for \$125. Tooley, 892-4352.

TAPPAN MICROWAVE, \$90; Sears continuous-cleaning range, copper-tone, \$120; Sears 19-cu.-ft. refrigerator w/ice maker, copper-tone, needs work, \$25. Blaine, 883-1439.

AMATEUR RADIO EQUIPMENT, Heathkit HW-101 XCVR, HP-13b P/S, HM-102; Yaesu FT-227RB 2-meter XCVR; BC-221AF freq. meter; ARC-5 RCVR. Madden, 296-1082.

PUPPY: 8-wk.-old, AKC-registered collie, show collie parents, had first shots. Blakey, 294-2289.

RECLINER, Barcalounger, multicolor stripes (brown, beige, blue), \$90. Cook, 268-5406.

AUXILIARY GAS TANK for pickup, \$10; 36" door, all hardware, keys included, \$10. Gilkes, 881-0296.

BELL & HOWELL SLIDE LIBRARY BOXES, 14 ea. with 16 cubes, \$10 ea., all for \$100; Sears projector, \$100, all \$175 OBO. Stamm, 255-2640.

SLEEPER COUCH, beige; humidifier, automatic, variable-speed fan, 8.5 gal. Moss, 298-2643.

PLAYPEN, 40" x 40" with mesh sides, draft-guard, polyurethane foam pad, \$25. Vigil, 821-8059.

QUEEN-SIZE HIDE-A-BED, \$100 OBO. Freshour, 256-9168 after 5.

REFRIGERATOR, 3-yr.-old Kelvinator, top freezer, reversible doors, \$200; four adult-admission vouchers to San Diego tourist attractions, value \$80, sell for \$40. Wilde, 281-4511.

SWING SET, sand box, clothesline poles, chain link gate 3'W x 6'H. Rowe, 299-0961.

BACKPACK, alpine designs, w/external frame, \$25. Baldwin, 293-6730.

DREXEL DINING ROOM SET, bleached mahogany, table has extra leaf, 6 matching chairs and buffet. Ricker, 296-2191.

GREY TABBY MALE KITTEN, gentle and friendly, box-trained, free to good home. Haaker, 293-1077.

'83 TRAVEL TRAILER, 26' Prowler Regal, full bath, center bdr., sleeps 4, electric hitch, awning, microwave. Dew, 881-0709.

**TRANSPORTATION**

14' FIBERGLASS BOAT, new paint, 33-hp Johnson motor, tilt trailer, \$1850 OBO. Colgan, 344-3776.

'70 CHEV. NOVA, new tires, engine

needs work, \$250. Reed, 821-6315.

MOTORCYCLE, custom low-rider, show winner, Triumph 650cc engine, \$2000. Sanders, 298-7734.

'82 DODGE MAXI CARGO VAN, fully carpeted, V-8, OD, cruise, AC. Benson, 268-9727.

BOY'S 16" BIKE. Maestas, 831-4072 after 5.

'79 DODGE 4WD PICKUP, PS, PB, AM/FM cassette, 4-spd., locking tool box, new steel-belted radial tires, \$3400. Rush, 293-1511.

'86 MAZDA B2000 PICKUP, AC, AM/FM cassette, \$6200. Keltner, 298-7888.

FUJI 12-SPD. BICYCLE, Grand SE, 25" frame, w/thorn-resistant tubes, \$150. McNamee, 281-9190.

SAILBOAT, 11-1/2' Topper cartop, single sail, polypropylene construction, \$550. Stine, 982-4832.

'80 CORVETTE, loaded, glass T-tops, 42K miles, best offer over \$10,000. Hillhouse, 275-0659.

'83 HONDA MOPED, 250cm, 75 mpg, trunk, belt drive, \$695. Holmes, 292-0898.

'86 KAWASAKI NINJA 600R, 1.9K miles, garaged, Ninja cover and Shoei helmet included, \$2800 OBO. Turner, 877-5649 after 5.

BICYCLE, Schwinn Continental, 10-spd., \$85; '79 Buick LeSabre Ltd., extras, needs body work, \$850. Atkins, 298-5762.

'83 TOYOTA PICKUP, long bed, 60K miles, collision damage, \$750. Eley, 255-2617.

'84 BRONCO II 4x4, V-6, 4-spd., limited-slip rear, cruise, cloth, two-tone, Jensen cassette, \$7850. Broyles, 299-9116.

10-SPD. HUFFY BICYCLE, 26", \$50. Reger, 836-0841.

'81 CHEVETTE, AM/FM tape, AT, AC, new SB tires, battery, and brakes, \$1450 OBO. Everett, 296-8786.

'82 YAMAHA 650, Seca Turbo, 6K miles, \$1300. Hudson, 255-8385.

'78 FORD FAIRMONT, 4-dr., V-8, AT, AC, PS, PB, 123K miles, transmission leaks, \$500. Smith, 898-7787.

'79 DODGE OMNI, new brakes, Pioneer FM stereo tape w/12-band, 50-watt graphic equalizer, \$1100. Hughes, 883-8784.

'75 HONDA CVCC, many parts, engine not working, 3 tires, \$100. Pyo, 822-9056 after 5.

'73 OLDSMOBILE CUTLASS, 2-dr., vinyl top, new battery, radials, rebuilt AT, AM/FM, \$850. Atkins, 298-5762.

'83 SUBARU SW, 4-dr., AC, AT, PW, cruise, new tires, 28K miles, \$4950. Lackey, 869-9333.

'79 YAMAHA IT175 DIRT BIKE, extra parts, \$300. Hubbard, 842-9431.

'77 DATSUN 710, \$900. Murphy, 345-9337.

10-SPD. BICYCLE, men's Raleigh, 26", red, \$35. Reid, 268-6506.

'74 DODGE TRADESMAN 300, 1-ton van, 318, AT, body rough, \$950. Klaus, 843-6439.

'70 HONDA 350 street bike, electric start, \$250. Hann, 299-7460.

'83 NISSAN PULSAR NX, AC, 5-spd., sunroof, tinted windows, nose mask, 51K miles, \$4500 OBO. Johnson, 293-1835.

'74 OLDS CUTLASS SUPREME, AT, V-8, AC, heater, radio, \$750. Hill, 293-3582 after 6 weekdays.

'76 TR-7 ROADSTER, hardtop, 63K miles, \$2200; women's Schwinn bicycle, \$10. Bray, 292-2410.

'75 CAMARO, 350, V-8, AT, new paint, one owner; '73 Camaro, 350, V-8, AT, new tires. Scott, 296-4159.

'85 CHRYSLER LeBARON, 4-dr, 2.3K miles, PS, PB, AC, \$8500. Smiel, 884-4460 after 6.

'78 YAMAHA SR500, 13K miles (2.4K miles on rebuilt engine), garaged, \$600. Hartzell, 292-5726.

'63 VW BUG, white, new clutch, \$800 OBO. Warren, 881-2980.

'87 KAWASAKI ZX750 NINJA, less than 1K miles, 500-mile service completed, 34 months remaining on transferable warranty. Turner, 293-8938.

HOBIE 16' CATAMARAN, trailer, trapeze, righting lines, \$2500. Smith, 296-8456.

'75 PONTIAC LeMANS, 4-dr., white, 61K miles, \$1500 OBO. Koletar, 255-4751.

MEN'S 10-SPD. BICYCLE, sport touring, 21" frame, upgraded Japanese components, pump, adult-ridden, \$225. Van Deusen, 291-8196.

'77 VW CAMPMOBILE, 58K miles, \$2450. Madden, 296-1082.

'68 FORD TORINO FASTBACK, 75K miles, AT, PB, PS, \$1200. Hosking, 836-2128.

'78 CHEVY VAN, fully automatic, A/C, \$4,950. Higgin, 299-3159 or 296-6211.

'86 SUZUKI SAMURAI JX 4x4 convertible, 5-spd., AM/FM cassette, deluxe package, 3.5K miles, \$7195. Clark, 292-1495.

WOMEN'S 3-SPD. BICYCLE. Houston, 299-4118.

BICYCLES: 26" 1-spd., boy's 24" 10-spd., girl's 24" 3-spd., \$20 ea. Gilkes, 881-0296.

'75 CHEVY NOVA, V-8, AT, PS, 4-dr., trailer hitch, cruise, one owner, \$875. Fernandez, 298-9715.

'80 MONTE CARLO, T-tops, AC, AT, 54K miles, \$3800 OBO. LLoyd, 883-5781.

'83 FORD RANGER XLT 4X4, V-6, 5-spd., loaded, w/shell, dual tanks, 63K miles, \$5000; '81 Yamaha Special II 650 cc twin, 6500 miles, \$750. Toya, 898-0491.

'78 CAMARO, original owner, V-8, AT, PS, PB, AC, \$2200. DeLaurentis, 293-3778.

BOY'S 20" BMX DIRT BIKE, AMF Hawk 1, \$35. Carlson, 247-4749.

'85 VW JETTA, AC, PB, rack and pinion steering, radials, AT, quad stereo, 4-dr., tinted windows, \$8300. Vigil, 821-6779.

'84 DODGE CARAVAN SE (mini-van), \$6900. Mowry, 299-2526.

'83 CITATION VG, AC, cruise, PS, PB, new tires and brakes, original owner, book \$2900, sell for \$2300. Sturgeon, 281-9035.

'81 SUZUKI, GS650G shaft, \$1095; '81 Kawasaki, KZ440LTD belt, \$895; each has windshield, trunk case-savers. Love, 884-8475.

'86 FORD HD F-250 SUPER CAB, 4WD diesel, 12K miles, loaded, \$16,000; Lance camper, 9.5', loaded, self-contained, \$8500. Davis, 294-6519.

**REAL ESTATE**

10 ACRES, pine-covered, east of mountains, north of I-40, 15 miles from Sandia, \$90,000. Sanders, 298-7734.

1-BDR. HOME in Portales, 2 mi. from ENMU, refrigerator, stove, \$9800/total, \$1800/down, \$129/mo. payments including PITI. Snelling, 294-5751.

3-BDR. ALL-BRICK MOSSMAN, 1-3/4 baths, 1560 sq. ft., pitched roof, grass front and back, \$91,500. Gillings, 884-0853.

3-BDR. HOME, 1 bath, NE Heights, established trees and lawn, alley access, stove, refrigerator, \$63,000. Wienecke, 292-5368.

10 ACRES, meadows, hills, house, views, water, barn, workshop, 25 minutes from Albq., Juan Tomas. Kopp, 292-1430.

5 ACRES, Manzano Mountains, near Oak Flats picnic grounds, will consider trade, \$5000 per acre. Marquez, 299-3198 or 831-3088 after 5.

2.5 ACRES, Forest Meadow Ranch subdiv., 1.8 miles off S-14, trees, electricity, phone, some east slope, \$16,500. Swahlan, 292-3598.

3-BDR. HOME, 1400 sq. ft., 1-3/4 baths, FP, 2-car garage, Lomas and Tramway, \$86,000, assumable first. Greenwood, 298-5268.

2-BDR. TOWNHOUSE, 1-3/4 baths, single garage, auto sprinklers, fenced yard, convenient to downtown and I-40, \$39,900. Schindwolf, 831-1940.

MOBILE HOME, 14' x 65', 2-bdr., 2 baths, appliances, washer and gas dryer, dishwasher, walk-in closet, pantry, ceiling fan in LR, AC, in family section of Four Hills Park, \$10,800. Lewis, 298-2877.

2-BDR. PATIO HOME, study, 2 baths, 2-car finished garage, FP, established landscaping, timed sprinklers, NE, 1212 sq. ft., \$86,500. Dobranich, 298-4547.

LOT, Bridge Blvd. and Goff SW, \$25,000 OBO. Sanchez, 877-5231.

3-BDR. HOME, NE Heights near mountains, views, 1-3/4 baths, 1500 sq. ft., fully landscaped, 9 yrs. old. Hinkel, 298-8226.

4-BDR. HOME, Arroyo del Oso area, brick, 2500 sq. ft., 2-1/2 baths, 40' x 18' pool, assumable loans, \$139,900. Beegle, 296-5300.

4-BDR. HOME, Four Hills, 2200 sq. ft., 2-1/2 baths, garden, mature fruit trees, \$138,000. Mills, 294-5219.

3-BDR. ROBERSON HOME, 1-3/4 baths, 1300 sq. ft., NE Heights, FHA appraisal, \$68,000. Marshall, 298-1699.

WOODED LOT, almost 1 acre, 13 miles from Cuba on NM 96, stocked lake, water system, \$5500 OBO. Mora, 281-9815.

3-BDR. HOME, Candelight Hills, 1885 sq. ft., recently remodeled, study, landscaping with auto sprinklers. Carrigan, 821-5856.

3-BDR HOME, 1 bath, new paint, near KAFB & schools, 13401 Chico N.E. Floyd, 296-5062.

3-BDR. HOUSE, SE, 1 bath, \$56,000. Hubbard, 842-9431.

3-BDR. HOME, near Indian School and Lomas, 1 bath, DR, single garage, landscaped, some appliances, covered patio, new furnace w/humidifier, \$69,000. Nielson, 294-1281.

**WANTED**

HOST FAMILIES for 3 disappointed high school boys from Spain, '87-'88 school year, speak English, original family cancelled. Schubeck, 821-3133.

CANOPY BED for small girl, 4-poster, metal, white. Reed, 821-6315 after 5:30.

ADAPTER that allows a cassette to be played in an 8-track player. Miller, 255-7716.

RACK to fasten lightweight wheelchair to car bumper. Pendall, 265-3008.

OSCILLOSCOPE, other electronic test gear. Brocato, 281-9656.

OBOE, in good playing condition, w/low B-flat key, either wood or plastic. Donez, 831-6992.

ROOMMATE to share SE Heights house, close to Base and UNM, \$165/mo. plus 1/2 utilities. Eley, 255-2617.

GAS TANK for '48 Chevy 3/4-ton PU, need under-bed type with 6V sender, filler tube, will pay \$25. Dowdy, 294-1278.

HOUSEMATE, non-smoker, to share house in Carnuel, 10 minutes from Eubank gate, pet OK, \$250 plus 1/2 utilities. Boslough, 294-3907.

CANOE, Grumman aluminum preferred, must be in good to excellent condition. Northrop, 884-4718.

EXERCISE BICYCLE, stationary. Hill, 294-7534.

'76-'79 FORD, F-250, 4WD, long wide bed, or '79 Ford Bronco in excellent condition. Ruminski, 268-3811.

MEN'S 10-SPD. BICYCLE, 25-inch frame or larger; shotgun shell and pistol bullet reloaders. Massis, 299-5584.

MACHINIST'S TOOL BOX, 8 or 11 drawers, wood or metal, good condition. Kureczko, 298-1577.

CARPET, in good condition, at least 12' x 12'. Sichler, 265-2475.

HOUSEMATE, male, non-smoker, to share 3-bdr. house in Menaul/Chelwood NE area, private bedroom and bath with kitchen privileges, garage space (no furniture storage), \$200 plus 1/2 utilities. Luning, 296-9331.

KODAK CAROUSEL TRAYS and stack loader. Mischke, 828-1610 leave message.

UMBRELLA CLOTHESLINE, at least 4-load capacity. Walston, 298-1500.

**WORK WANTED**

LONG-TERM HOUSE-SITTING, by 23-yr. old male, UNM freshman, Coast Guard veteran, non-smoker, Aug. 1. Pyle-Fjelseth, 296-2257.

HOUSE-SITTING, by college senior, also pet care, lawn care, etc., references available. Cook, 296-3064.

**LOST AND FOUND**

LOST: silver hole punch key ring, F-shaped, with 6 keys, parking lot west of 802, across Wyoming. Apodaca, 836-5691.

# Wild and Woolly Western Nights Coming Up This Evening, Next Friday

**CLOSET COWBOYS:** Come on out to the O.K. Corral (better known as the ballroom) tonight for some sagebrush shufflin' right after the two-for-one dinner special. Chuck wagon choices are something else — filet mignon or fried shrimp, two dinners for \$14.95. Then those crowd-pleasing Isleta Poor Boys take center stage from 8 p.m. to midnight, providing their good old country/western tunes for your dancing pleasure.

Next Friday night (July 24), wing it to the stomp strains of Western Flyer following the two-for-one featuring prime rib or halibut. Help out the ranch hands in the C-Club kitchen by calling in your dinner reservation for both nights (265-6791).

**FISH ARE JUMPIN'** and so are those Coronado Aquatic Club swimmers as they hit the water for their next home swim meet on Saturday, July 25; aquatic action starts at 7:30 a.m. It's an early hour, to be sure, but take heart: *You* don't have to jump into that cold water at the break of day; your only job is letting loose with a few rousing cheers for the CAC clan as the group paddles its way to victory!

**THEY'RE ALL HEART,** and *always* call a spade a spade. You guessed it: T-Bird card sharks go back to the tables on Thursday, July 23, starting at 10:30 a.m. Head dealer Jim McCutcheon tells us that, as usual, there'll be free coffee, cookies, and door prizes along with the gaming. The sharks get together in August on the 6th and 20th, so mark your calendar.

**SUMMERTIME, AND THE LIVING IS EASY** — if you come out for Family Pool Night on Wednes-

day, July 29. Pool and patio are open from 6 to 9 p.m., and you can forget about cooking that night; the snack bar and grill are open all evening. It's free for pool pass holders, \$1/person for Club members without passes, and \$2/person for members' guests.

**BACK IN THE FAST LANE** later this month (July 28-30) are the Thunderbird Roadrunners as they head for Rio Grande Gorge State Park, located between Española and Taos. Details and more info available from wagon masters Duane Laymon (822-1749), Tom Brooks (344-5855), or Bill Minser (299-1364).

**ANOTHER FREEBIE** — The fun never sets when you visit the pool/patio area, because you can check out — for free — all manner of equipment at the pool office for use while you're there. How about a basketball, a volleyball, badminton rackets and birdies, ping-pong paddles and balls, shuffleboard equipment, and horseshoes for starters? Or, if you're a Navratilova or a Cash in disguise, practice your groundstrokes as you battle that ball machine with the mean volley.

**SPEAKING OF TENNIS,** those long-awaited lights will soon brighten your evenings at the C-Club courts. Lighting installation should be complete by the end of the month. If you'd like to join the Coronado Tennis Club, or need more information, give the Recreation Office a call at 4-8486.

**ANOTHER BIG BAND BASH** is in the works as Don Lesmen and crew return to the Club on Friday night, July 31. From 8 to 11:30 p.m., they'll play those great tunes from the 40s and 50s — you

can even understand the words! Get in the mood, wear that string of pearls, and make a night of it by starting out with the two-for-one special: Filet mignon or shrimp scampi are your menu choices that evening. Dinner reservations recommended, because Lesmen always packs the place. But *don't* call Pennsylvania 6-5-oh-oh-oh; call 265-6791.

**ON THE STREET OF DREAMS** is where you'll be once you've signed up for one of those super sojourns planned by the C-Club Travel Committee. Coming soon:

**Luau and Leis** — Head for Hawaii in late October and early November (Oct. 30-Nov. 9) and find out what paradise is all about. You'll spend four nights on Oahu, two on Kauai, and three on Maui, plus a night in L.A. on the way back. All sorts of optional ground tours available in the Islands, and you'll feast at an authentic luau during your stay on Kauai. The \$989/person (double) price includes RT air fare from Albuquerque, 10 nights' lodging, a lei greeting in Honolulu, the Kauai luau, rental car per couple on Kauai and Maui, and much more. Reserve your space with a \$100/person deposit by Aug. 1; final payment due by Sept. 15.

**Aspenade Shuffle** — You can view northern New Mexico's fall foliage if you sign up for a one-day excursion (Sept. 26) on the Cumbres-Toltec Railway. Make the one-way train trip between Chama and Antonito (Colo.); at the end of the line, catch a waiting bus for the return trip to Albuquerque. If you've never seen autumn aspens in beautiful Cumbres Pass, here's your golden opportunity!

## Fun & Games

**Football** — The Sandia Football Association had four teams last year and is looking for more this time around. The association sponsors intramural flag football with minimal-contact rules. All interested team representatives and players are invited to attend the organizational meeting on August 11, 4:45 p.m. at the Coronado Club. Contact Phil Federico (9114) on 4-8894 or Emil Kadlec (5142) on 4-1059 for details.

\* \* \*

**Tennis** — Not only tennis balls but also refreshments will be served at the next Sandia Tennis Association (STA) tournament, set for July 25 and 26 at the Coronado Club courts. Events include men's and women's singles and doubles. Contact Charlene Schaldach (2645) at 4-6734 or Joe Ruggles (7865) at 4-7743 to sign up.

\* \* \*

**More Tennis** — Congratulations to winners of the STA's June Tournament: Paul (2360) and Shannon Longmire, who defeated Fred (7542) and Sara Cericola in Mixed Doubles; Mike and Wilson Walters, who defeated Dick Schlimme and Jim Martin (2312) in Men's Doubles; and Terry Martinez (1260) and Charlene Schaldach (2645), who defeated Sara Cericola and Cathy Schirber in Women's Doubles.

\* \* \*

**Volleyball** — The coming volleyball season will be ushered in with the election of new officers on July 30, 5-8 p.m., at the Coronado Club. Volunteers are urged to call Charles Ringler (5249) at 6-1607. An awards banquet for top tournament finishers will cap the business meeting. The A league winner was Bruce Draper's (2132) team, with Randy Herrin's team coming in a close second. In the B league, Mike Casto's (BAO) team came through the losers' bracket to take the win from Jerry Cap's (1250) team. Gary Harms's (6421) team took the win from Dan Alpert's

(6226) team in the C white league. After a playoff with Mike Boccabella's (1124) team, Tony Baca's (7831) team became the C blue league winner. T-shirts go to the winners, and a volleyball gets spiked to each of the second-place teams.



**NEW GROUP OF OYOC** (One-Year-On-Campus) participants signed in at Sandia this spring. Shown here are (front row, from left): Ken Chavez (1551), Robert Hutchinson (5263), James Pacheco (6226), Ramona Myers (7472), Wendy Amai (5267), Jill Werner (1414), Deborah Sebring (5268), and Susan Stiles-Esfahani (2313). Back row: OYOC Administrator Ed Gullick (3521), Vincent Salazar (5144), Gerald Holmes (1244), Vincente Romero (1513), Manuel Contreras (2312), Guy Chun (9222), and Div. 3521 supervisor Dick Fairbanks (not pictured: Nancy Russell, 6415). OYOC, an Affirmative Action program, enables outstanding women and minority students with BS degrees to earn their MSs in engineering or computer science during their first year at Sandia. The new OYOC participants will work at the Labs this summer, then attend one of nine OYOC-approved universities during the 1987-88 school year.

### As Long as It Sings on Key



The latest in gadgets for the bathroom is a toilet seat that doubles as weighing scales. Frenchman Emmanuel de Cancause has filed patent applications around the world on a range of lavatory seats that do just that. One version uses piezoelectric pressure sensors under the seat. Another has fluid sealed in a bag which presses against a sensor when the seat is weighed down. The sensors in both cases generate an electric signal that can either give a reading of the weight on a visual display, or power a speech-synthesis chip that sings out the awful truth.

Barry Fox, *New Scientist*